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Another SAUNDERS BOOK on Page 3

SUBJECT INDEX TO THIS ISSUE

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FACTORS IN THE ADVANCEMENT OF ORTHOPEDIC SURGERY*

JOHN PRENTISS LORD, M.D.
OMAHA

The evolution of orthopedic surgery has been a slow and interesting process. One would not be justified in antedating Hippocrates, the father of medicine, who was so wonderfully well rounded in his wisdom and possessed so many qualifications as a wise surgical counselor, and discoursed so learnedly on fractures, deformities and improvement of function that we recognize he possessed a singularly strong orthopedic bent. Those were the times before specialties were conceived; though it is probable that there were men in those very early periods who became more adept and skilful along special lines of practice. It is doubtless true that there were those who early gave special attention to deformities, more especially congenital ones; hence the necessity for a name to designate this branch of healing.

It was about 2,000 years later that Nicholas Andry presented his "Orthopaedia," from which dates the origin of our word to designate the specialty of orthopedic surgery: from "orthos," straight, and "pedos," child; literally translated: to grow a child straight. The very etymology of this word seemed to have circumscribed and limited the practice of this art. Not until the pupal stage had been reached and this confining chrysalis, Orthopaedia, had become too small to express adequately the size and breadth of this rather comprehensive specialty did it burst forth to assume its larger sphere, its advancement and development in recent years having outrun the limitations of its name.

The principles of orthopedic surgery apply to persons of all ages: grandmother with a broken hip, the laborer with a fractured thigh, a suppurating joint or an osteomyelitis stand in the same need of having deformity prevented, function restored and a return to normality as does the child. Hence the principles of orthopedic surgery are carried into the broad fields of medicine and surgery and into all periods of life.

Naturally the advances in orthopedic surgery have been coincident with the development of general surgery, and its progress has been so rapid and spectacular that general surgeons were fully occupied by its major achievements. Hence it came about that fractures were treated by the beginners and assistants, and later, open operations became the vogue before bone technic had been acquired by many, and there were early and continued disasters in open bone surgery.

Radiography in early and end results had revealed the imperfections of the manipulative treatment of fractures: thus the opening for those who had studied, pondered and dwelt on the fundamentals of fracture treatment, as related to function, and whose everyday use of apparatus had rendered them more adept in the use of mechanical appliances.

That orthopedists have shown special aptitude in fracture treatment has been recognized in many of our foremost teaching institutions, including Harvard, Washington, Michigan and the Mayo Clinic.

The consensus is that cases of fracture and osteomyelitis should be referred to the department where the patient will receive the best treatment; and it is generally admitted that those who have given special attention and study to the surgery of the extremities are the orthopedic surgeons.

To secure union in a fractured femur and have with it an ankylosis of the knee, too much shortening, or nonunion as an end-result is too common. These cases occur usually in the hands of general practitioners or general surgeons, perhaps because the major portion of these cases fall into their hands; hence the greater necessity for improvement among those who too commonly assume to be responsible in such grave undertakings. There is a manifest need of more general training in orthopedic principles, coupled with better training in surgery to lessen the percentage of poor results that are seen everywhere.

The writings of that master orthopedic surgeon Sir Robert Jones, notably the Cameron Lecture on the Necessity of Orthopedic Training in Relation to the Prevention and Cure of Deformities,[1] are a plea for this training in England. This call might well be heeded in this country.

For many years I have felt free to state that a fractured femur represents a major surgical problem, the treatment of which should be no more readily undertaken than a major operation of any kind by those not specially trained and fitted for assuming so great a responsibility.

The status of orthopedic surgery in our hospitals and in our teaching institutions varies greatly. It is usually under the dominance of general surgery, and numerically the orthopedic surgeons are in the minority. Under these conditions, their field is limited. Old tradition has been broken down in some of our larger and more outstanding universities where individualism is given a free hand, and there has resulted an advantage to the patient, the institution and the individual workers.

A questionnaire relative to the status of orthopedics in our leading universities discloses a great lack of

* Chairman's address, read before the Section on Orthopedic Surgery at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 19, 1927.

1. Jones, Robert: Brit. M. J. 1: 181 (Feb. 5) 1921.

uniformity in their curriculums and great variation of custom in the distribution and assignment of cases to orthopedic departments. Some universities adhere to the old original classification of orthopedic cases, chiefly the congenital defects involving the extremities in deformity and the chronic progressive cases of deformity and disability.

The newer and broader classification of orthopedic conditions includes fractures, osteomyelitis and joint diseases, all of which are prone to result in deformity and disability. One of the larger functions of orthopedic surgery is to prevent or minimize the latter conditions. Hence to accomplish these results such cases should be assigned to the orthopedic department on admission. Many orthopedic surgeons have reason to complain that too often their departments are but the dumping ground, the junk heap, for maltreated cases from general surgeons and general practitioners.

The American Orthopaedic Association several years ago changed the name of its official organ, the *Journal of the American Orthopaedic Association*, to the *Journal of Bone and Joint Surgery*, because its members felt that the old name implied too great limitations on their specialty.

Dr. Evarts Graham, chief of the department of surgery, Washington University Medical School, in response to a personal letter, says:

Institutions like ours have as accepted functions not only the care of the sick but also the creation of new knowledge, the teaching of undergraduate students of medicine, and the training of experts. We feel that the latter three functions can best be carried out by those who have a particular enthusiasm and a particular ability for certain kinds of work. For example, a man who is particularly interested in orthopedic surgery is more likely to keep abreast of the current literature and to know what new knowledge has been added to this subject than the general surgeon, who perhaps may be less interested in this subject than in some other field of surgery. Because of this particular enthusiasm for a particular subject, the specialist is also likely to be in a better position to stimulate new ideas and to conduct better teaching. Also, if he is properly trained he will personally be able to render better service to the patient, because of his superior knowledge, than the general surgeon.

For all these reasons, therefore, our policy here is to give a good deal of latitude to all the special departments. In the case of the section of orthopedic surgery, we ordinarily assign to it all the diseases and disarrangements of joints and spine, tuberculosis of the joints, deformity and disability of the feet, poliomyelitis and spastic conditions, low back strain and postural defects. In addition also the orthopedic service takes care of about half the fractures, many of the cases of osteomyelitis and also many of the bone tumors.

My own feeling is that the so-called orthopedic surgeons should be considered as surgeons who are especially interested in the extremities. They should therefore be familiar with all types of bone pathology and also the various conditions which are likely to affect the extremities.

Dr. E. S. Moore, superintendent of the hospital staff of the University of Illinois College of Medicine, states that:

Formerly it was the custom to refer all fractures and cases of osteomyelitis to the surgical department. At the present time, the surgical department has very much relaxed its claims and now we send to the orthopedic surgeons all fractures which involve a joint, many of the osteomyelitis cases and the arthritis cases that call for special physical management.

It is our plan to develop a department of physical therapy under the direction of the orthopedic department. Consequently the group of cases that call for cases of this character are referred by surgery to the orthopedic department for care. This makes the teaching problem for the students easier to handle and divides the work amicably between the departments.

Dr. Hugh Cabot of the University of Michigan Medical School writes, in part:

Some years ago, certainly as early as 1910, I came very clearly to the opinion that the organization as it then existed at Harvard, the school with which I was most closely connected, was faulty; that there was a distinct tendency to regard orthopedic surgery as concerned only with deformities and not recognize the fact that the principles of orthopedic surgery, properly understood, were applicable to all conditions of bones, joints, muscles and tendons, which, taken together, form a large place in the practice of medicine. It was quite clear to me that some of the orthopedic surgeons grasped the principles of the treatment of fractures very much more soundly than the general surgeon.

At that time, practically all the departments of orthopedic surgery were isolated from general surgery and the tendency to cramp the field was to some extent, I think, consequent on that fact. Therefore when it became necessary for me to organize the department at Michigan, I found that there were three separate compartments quite definitely isolated, and with jealousies constantly interfering with the conduct of the department. The first thing I did was to kick down all the partitions and create one department of surgery in which bone and joint surgery and genito-urinary surgery played an important part; I had men in charge of this work whose titles were assistant or associate professor of surgery with no distinction.

Since that time the department of bone and joint surgery, as we call it, has become very large and whereas at one time I allocated to this division all the cases of osteomyelitis, fractures and other similar conditions, I have had to withdraw some of it, partly to avoid overwhelming the division, and partly to insure the fact that the house staff in general surgery would not lose track of the acute conditions which they must constantly face.

At the present time, the department of bone and joint surgery deals with the more complicated fractures, with a reasonable proportion of the cases of osteomyelitis, and takes "pot luck" in the cases of bone tumors.

The point which you raise in regard to the prevention of deformities has been satisfactorily demonstrated here. A large proportion of the deformities which we see are the result of ignorance on the part of the general practitioner of the principles of bone and joint surgery. This is, I think, directly due to the faulty teaching of an earlier generation. The teaching in this field is carried on jointly by Dr. Badgley, who is in charge of the bone and joint division, and Dr. Coller, who is associate professor of general surgery. It so happens that he has long been interested in fractures and by this plan we keep the field open and assure constant touch on the part of all concerned. It also results in the conception by the student of the fact that there is no division between orthopedic surgery, so called, and fractures, dislocations, sprains and other acute injuries.

I think this type of organization has worked well during the six years it has been in operation. Certainly our staff has been very pleasingly associated and the old bickerings and quarrels have been entirely eliminated.

I do not doubt that bone and joint surgery is properly regarded as a specialty, but I am not clear that this fact ought to affect the organization of teaching departments, so that barriers are built up which inevitably penetrate the students' minds, if nothing else does. We are constantly turning out youngsters who, after some five years of service, at least two of which have been spent in general surgery, are pretty well equipped to specialize in orthopedics if they so desire and the opportunities present.

Dr. M. S. Henderson of the Mayo Clinic says:

The orthopedic service at the Mayo Clinic handles all the fractures, both recent and old, and all the joint conditions, both acute and chronic. The nerve cases are taken care of by the neurologic section, and the vascular disturbances, varicose veins, etc., are taken care of by a general surgeon. Most of the various tumors of the extremities are cared for in the orthopedic department.

There are different rulings about this wherever one goes. After all, it largely depends on the ability and interest shown by the orthopedic man as to what he gets. Also when some

general surgeon takes a keen interest in fractures and is doing excellent work, it is rather difficult to interfere and take them away from him. It is my opinion that orthopedic surgery is merely a phase of surgery, and as a whole there probably never will be any arbitrary divisions definitely decided on which will apply universally as to just what does comprise so-called orthopedic surgery.

I have just returned from England, where they are in the midst of just such a debate, the general surgeon resenting the claims of the orthopedic surgeon as to certain phases of the work.

An outstanding factor in the advancement of orthopedic surgery is that, in recent years, great interest in the cripple has been shown; especially outstanding in these activities for practical wholesale helpfulness and achievement are the Scottish Rite Masons, the Shriners, the Kiwanians, the Rotarians, the Elks and other fraternal societies and noonday clubs. Also to be mentioned are school inspection, visiting nurses, Red Cross nurses and state and county fairs, community clinics and parent-teacher associations, whose spirit of service and wide inclusiveness has necessarily developed a propaganda that has diffused a knowledge of the needs of the cripple which has reached the people. Therefore the cripple is the recipient of very special attention which has brought the cripple or the potential cripple to some of the organized agencies for his care. The particularly strong appeal of the crippled child has loosened the small as well as the large purse strings. Among some of the latter were the Wideners, who built and endowed that marvelously equipped institution at Philadelphia; Cousins, who was responsible for the newer and larger Children's Hospital in Detroit and its ideal convalescent home, and Proctor of Cincinnati, who has just completed a children's hospital in that city that cost a million and a half dollars, embodying all that represents modernity and perfection in modern hospital construction. All these and similar evidences of serious interest in the crippled child serve to advance orthopedic surgery.

Our great universities, the great city hospitals, free dispensaries, the special children's hospitals, state orthopedic hospitals and convalescing homes have collected, segregated and cared for, rehabilitated and salvaged cripples by the thousands; all of which means that the orthopedic surgeons of the country have had a vast and incalculable amount to do in this international movement of bringing surgical aid to the cripples of this country and other countries. Convalescing homes and schools have done much to retain the cases under observation and treatment and have also been a great advantage in releasing hospital beds for new cases.

The organized agencies for the care of the crippled in our country are so numerous and so active that very large numbers of cases have become available for clinical and teaching purposes. This command of material has done much to increase the experience and enhance the skill of our orthopedic surgeons.

A few years ago, orthopedic surgery was confined to the larger cities. Now orthopedics as a specialty is practiced throughout the land. Both coasts and the interior of our country are richly supplied with orthopedic clinics, many of which have well deserved international reputations. European clinics are larger because of economic conditions, but they are no richer in material nor does the quality of the service rendered surpass that given by our own American orthopedic clinicians, many of whom have acquired in their own clinics an enormous experience and technical skill, the result of a wide knowledge and observation of all that is best from the outstanding teachers and foremost clinics of the world. Therefore our own country may be said to possess some of the best skill known to orthopedic art.

At no previous time has so much attention been given to the welfare of children. State hospitals for crippled children early demonstrated the necessity for wholesale provision for the care of our large numbers of crippled and physically handicapped children, now estimated to number nearly one-half million. Not all states have made this provision, and even those who have have not fully met the requirements. In some instances large bequests have supplemented state or community development of institutions for relief, care, education and vocational training of crippled children. The Eustace benefaction of a million dollar campus to the University of Minnesota is a recent example of present-day tendencies.

All this private and public interest in the cause of the cripple has been tremendously augmented by the assumption of the care of indigent crippled children and their temporary adoption by the many organizations of this country and Canada and, indeed, the world. It seems fitting to state that the Scottish Rite Masons were the first to put into operation and actual working order this movement in the establishment of their hospital at Atlanta, Ga., where that master orthopedic surgeon, Michael Hoke, inaugurated and has continued his work.

Clinics for crippled children at state and county fairs and in connection with county and district medical societies, with the cooperation of the visiting nurses, increase the interest of all in the care and treatment of orthopedic cases and enhance the practice of those in the orthopedic specialty.

These are merely illustrations of the widespread and well nigh universal activities in the interests of our rapidly growing and advancing specialty.

Among some of the factors in reducing deformities are the lessened use of the obstetric forceps and the growing unpopularity of forcible delivery, as evidenced by the present-day common resort to cesarean section. With the present improved knowledge of the control of infantile paralysis and the hoped for discovery of the precise character of the organism producing infantile paralysis and an antitoxin (or serum) to combat and cure as does antitoxin in diphtheria, the disabilities from that disease will be diminished perhaps a thousand fold, and thus prevention will, as always when operative, be a factor of greatest importance.

The pediatric specialty is an incalculable factor in the prevention of orthopedic deformities and disabilities. The individual cooperation and leadership of these men and women and the consequent improvement in the care and feeding of children through the administration of the numerous organized welfare agencies, will necessarily and inevitably reduce the incidence of deformities due to nutritional deficiency.

The slow progress made in our knowledge of glandular imbalance and our lack of a sufficiently matured glandular therapy are causing pediatricians and orthopedists to feel that there is much to be learned in this branch of medicine before any definite and sufficient advancement can be made in this empiric and little developed field.

The present-day tendency to cross the border lines of our specialties, and cooperation between each and all in our hospitals, societies and private conferences, where all are interested in solving the mysteries of dis-

ease, are doing much for real progress in medicine and surgery. Possibly specialism has in its eager individual desire to excel become too exclusive, independent, self sufficient and hence of necessity narrow.

One of the reasons for a wider and more general improvement of orthopedic principles and practice is the fact that surgeons are becoming better orthopedists and orthopedists are becoming better surgeons. It is therefore gratifying to note that much of our present-day progress comes from both our highly trained specialists in orthopedic surgery and our orthopedically minded general surgeons. To quote from Sir Robert Jones:

> The general surgeon's part in its development is by being more of an orthopedist, and the orthopedist himself by becoming more of a surgeon.

Medical Arts Building.

ACUTE PANCREATITIS FOLLOWED BY DIABETES *

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MILWAUKEE

It is only in recent years that mild forms of inflammatory conditions in such organs as the liver and pancreas have begun to be recognized, and the best textbooks have not yet incorporated descriptions of them in the sections on diseases of the liver and pancreas.[1] There are complete descriptions of acute suppurative cholangeitis and also of acute hemorrhagic pancreatitis. Only in the current literature is attention called to the less acute and nonfatal forms. Yet Albu wrote, in 1911, "Among the many diseases of the abdominal organs which produce this often mistaken symptom (stomach cramps), pancreas colic at any rate should be considered especially in connection with a serious and obscure disease process."

It is to a rather unusual sequela of pancreatitis that attention is here directed. Certain lesions of the pancreas have long been recognized to be associated with diabetes. As a result of the work of Opie, Allen and others in this country and abroad, knowledge of diabetes has been greatly advanced. The immense amount of work on sugar metabolism has enlarged the conception of diabetes, and the discovery of insulin has added a means of keeping the severely ill patients alive and in good nutrition.

The nature of diabetes, however, is not as simple as Opie[2] thought in 1903. Many apparently destructive lesions of the pancreas are not accompanied by glycosuria, while on the other hand it has not always been possible to demonstrate with the microscope any lesions of the islands in patients dying from diabetes. Interacinous and interlobular types of pancreatitis are still spoken of, but in the light of recent knowledge this distinction is not as vital as it seemed twenty-five years ago. What can still be said is that, so far as we know, lesions of the islands of Langerhans are accompanied by diabetes, provided the island tissue is pretty well destroyed. There are more than twice as many islands in the tail as there are in any other part of the gland. This has some significance, as will be shown later.

It has been known for some time that infections of various kinds apparently precipitated the onset of diabetes in an individual predisposed to the disease. R. M. Wilder writes, "We have had a few cases of mumps followed by diabetes in which abdominal pain suggested pancreatic involvement, and occasionally have seen cases of diabetes who give a history of acute abdominal pain at the onset. These may have been instances of pancreatitis; on the other hand, we kept in mind that the symptoms might perhaps be due to acidosis."

Joslin[3] blames our sugar-eating habits and our proneness to accumulate flesh for the increase in diabetes today. Wilder and others view the diabetic patient as one in whom the lessened ability to take care of an excess of carbohydrates is an inherited predisposition. Given such a person and add some febrile disease, his body suddenly loses the ability to burn sugar. Best, Smith and Scott,[4] Thalhimer and Perry[5] and others have called attention to the fact that insulin-like substances are found in muscle. In the higher animals the largest part of the insulin is concentrated in the pancreas, just as the most powerful stimulus to metabolism is concentrated in the thyroid gland.

In a recent study of cases of diabetes coming to autopsy, Wilder[6] found in the most acute cases the least demonstrable lesions in the pancreas. This leads him to divide cases of diabetes into two broad groups: (1) chronic cases in which such lesions as hyalinization of the islands of Langerhans and various grades of chronic pancreatitis are found, and (2) the acute progressive type, as observed especially in the young. He makes these interesting comments: "The two conditions seem as unlike as separate disease entities, and possibly as evidence is accumulated one will come to regard the latter as a disturbance which affects the insulin-making power universally and to see in the former the limited effect of disease of the pancreas."

Pain in the upper part of the abdomen in the course of diabetes can be due to any one of a number of causes which likewise produce pain in nondiabetic conditions. Some have thought that pain in the upper part of the abdomen might be due to acidosis. While this cause for pain cannot be categorically denied, it may fairly be asked why the majority of patients with acidosis do not have pain. Why should acidosis pick out the upper part of the abdomen? Is it not more reasonable to suppose that the pain is produced in an important organ lying in this region, acute inflammation of which is known to cause excruciating pain? It is difficult to see how acidosis of itself could cause upper abdominal pain.

Island tissue in the pancreas is necessary to protect an individual from diabetes. In the experimental production of diabetes it has been found that one sixth of the pancreas is sufficient to protect the animal from the disease. This is an accepted fact. It is unusual to find diabetes resulting from pancreatic inflammation. Atrophy of the acinous, external secreting tissue fails to produce changes in sugar metabolism. The usual chronic pancreatitis does not alter the sugar metabolism to such an extent that diabetes results. Acute pancreatitis, less acute than the form usually

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* Read before the Section on Practice of Medicine at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 18, 1927.

1. One exception is the excellent description of Mild Cases of Acute Pancreatic Necrosis by Dr. J. H. Pratt in his article on Diseases of the Pancreas in Oxford Medicine III: 495.
2. Opie, E. L.: Diseases of the Pancreas, Philadelphia, J. B. Lippincott Company, 1903.
3. Joslin, E. P.: The Treatment of Diabetes, ed. 3, Philadelphia, Lea & Febiger.
4. Best, C. H.; Smith, R. G., and Scott, D. A.: An Insulin-Like Material in Various Tissues of the Normal and Diabetic Animal, Am. J. Physiol. **68**: 161 (April) 1924.
5. Thalhimer, William, and Perry, Margaret C.: Diminished Glycolysis in the Blood in Diabetes, J. A. M. A. **80**: 1614 (June 2) 1923.
6. Wilder, R. M.: Necropsy Findings in Diabetes, South. M. J. **19**: 241 (April) 1926.

described in the textbooks, undoubtedly can occur during the course of diabetes. A case was seen in 1922 in my service at the University Hospital, Ann Arbor, Mich. A very intelligent young man who had severe diabetes had learned to balance his diet and the insulin intake, and kept excellent records of his progress. One day he suddenly had acute pain in the upper part of the abdomen; sugar tolerance was at once lost and he passed rapidly into coma, from which he was rescued with difficulty. All who saw him felt that an acute attack of pancreatitis had precipitated the coma. No other adequate explanation seemed to be correlated with the symptoms. As he recovered, there was no opportunity to verify the diagnosis.

The literature contains only recent reference to cases of diabetes following attacks of pancreatitis. The commonly reported acute hemorrhagic pancreatitis is usually so severe that the patient dies within a few days. Sugar is apparently not found in the urine in such cases. There are, however, a few cases in which there does not seem to be any doubt that in a perfectly well person diabetes has followed directly on an attack of pancreatitis which was not severe enough to produce death.

CASES REPORTED IN THE LITERATURE

Norero[7] saw a man, aged 41, in May 1911, who in June 1910, had suffered from an attack of acute abdominal pain and fever. He had been very ill for about twelve days. The urine did not show albumin or sugar at that time, and a definite diagnosis was not made. He recovered and went back to work. In 1911, two days before he entered the hospital, he was again taken with violent abdominal pain, particularly in the epigastrium and right hypochondrium. This attack was similar to the one of the previous year. The man had been a hard drinker. The skin was slightly icteric. He complained bitterly of thirst. Considerable sugar was found in the urine, but acetone or diacetic acid was not present. The stools were not fatty. The fever continued, his condition grew worse, and he died about fourteen days from the onset. At autopsy, cirrhosis of the liver was noted. There was no evident change in the gallbladder. The greater curvature of the stomach was adherent to the colon and to the adjacent organs. The pancreas was slightly enlarged, indurated and white. The lobulations were distinct. There were fine yellow lines resembling pus extending toward the tail, while the head was small, atrophic and brownish. Microscopically, the head was seen to be fibrosed. There was blood pigment scattered through the gland with evidence of old pigmentation in the head and a recent nodule in the body surrounded by small round cells. Toward the tail there was suppuration. The gland cells were necrotic. No mention is made of the islands.

Norero considers that the first attack was confined to the head of the pancreas. There was recovery without signs of diabetes. The second attack involved the rest of the gland, especially the tail. Glycosuria resulted. The history revealed that five months prior to the fatal attack the man had had symptoms of increased thirst, appetite and urination.

Caro and Winkler[8] report the case of a soldier who was seen in 1906, and at intervals thereafter had attacks of what was called "gallstone colic." At no time was any sugar found in the urine. He was seen, June 19, 1916, because of stomach and bowel pain. The abdomen was tender to pressure and slightly distended in the upper part. There was mild tonsil inflammation, and the temperature was slightly increased. The urine contained sugar but not acetone or diacetic acid. The probable diagnosis was acute pancreatic disease, although the white cells numbered only 7,200. The stools were brownish black and contained a few fatty acid crystals but no free fat. The benzidine test was positive. His condition grew worse; there was sugar in the urine continually, and he died, June 22, only five days after admission to the hospital.

At autopsy, an enlarged pancreas was seen, with hemorrhage and necrosis, particularly at the tail. The condition was diagnosed as a fulminating case of acute hemorrhagic pancreatitis, but the gallbladder was quite normal. Microscopic examination revealed numerous areas of fibrosis with old blood pigment, but most of the gland was infiltrated with fresh blood. It is apparent that the attacks of so-called gallstone colic which the patient had on previous occasions were attacks of pancreatitis. His last and fatal attack followed directly on an attack of angina follicularis. Bacteriologically, streptococci were found in the smear of the throat and were grown from the spleen.

Two cases of diabetes as sequelae of acute pancreatitis are reported by Dunn, Vatcher and Woodwark.[9] One patient, a man, aged 30, had had acute abdominal pain and an operation in 1916. Acute pancreatitis was found. His first symptoms of diabetes began in 1922. The other, a man, aged 56, had acute pancreatitis with hemorrhage and necrosis in 1920. Operation was performed with drainage. He recovered. In 1922 a trace of sugar was found in the urine. In 1924 a fair amount was found which was easily controlled by diet. In April, 1925, he was frankly diabetic with symptoms, a urinary sugar of 4 per cent and a blood sugar of 0.16 per cent. These two cases are noted here, although they are not of the type reported at this time. The length of time from the acute pancreatitis to the onset of diabetes, six years in one case and four years in the other, casts some doubt in my mind as to the causal relationship between the pancreatitis and the diabetes.

In Albu's[10] monograph, two cases are reported in which diabetes followed necrosis of the pancreas. The conditions and their treatment which preceded the final diagnosis were abscess, operation, drainage of the large abscess in the tail with fat necrosis, the occurrence of 4 per cent sugar in the urine and healing, followed later by empyema gallbladder, operation, cholecystectomy, recovery, and the disappearance of sugar. Seven months after these manifestations there was an onset of diabetes with from 4 to 5.2 per cent sugar, acetone and diacetic acid. Colicky pains were present in the upper part of the abdomen. These conditions, presumably, were indications of a chronic process in the pancreas leading to destruction of the islands. A detailed report of these two cases follows:

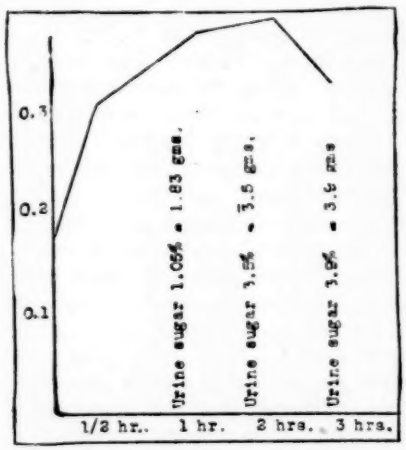
Mrs. Z, aged 29, while pregnant had frequent colicky pains in the region of the stomach. After delivery, these pains again set in. Several months later, she had a sudden violent attack with vomiting, in which pain alternated between and beneath the right and left costal arches. Examination showed distention and tenseness of the abdomen, especially in its upper part. The region immediately below the right costal margin was resistant and very tender. The appendix region was full, and the pelvis negative. The urine did not contain albumin or sugar. A diagnosis was made of beginning peritonitis arising either from a cholecystitis or pancreatitis.

7. Norero: Arch. d. mal. de l'app. digestif **7**: 86, 1913.
8. Caro and Winkler: Deutsches Arch. f. klin. Med. **125**: 147, 1918.
9. Dunn, J. P. S.; Vatcher, S., and Woodwark, A. S.: Diabetes as Sequela to Acute Pancreatitis, Lancet **1**: 595 (March 20) 1926.
10. Albu, Albert: Beiträge zur Diagnostik der inneren und chirurgischen Pankreaserkrankungen, Halle, 1911.

In the course of a few days all the symptoms subsided, but sugar was found in the urine and occasionally acetone and diacetic acid. Fat in the stools fluctuated in quantity, but many muscle fibers were always present. Eight days later there was another violent attack with fever. A tender resistance appeared above the navel which subsided in a day or two, and the region of the spleen became prominent, producing a visible swelling in the lumbar region. This swelling felt as large as a child's head, and was firm and elastic. The diagnosis was pancreas abscess or necrosis.

Operation revealed a large cavity containing from 1 to 1.5 liters of cloudy serous fluid in which were pieces of fatty tissue and typical fat necrosis. Even in the subserous connective tissue there were fat necroses. A large piece of necrotic pancreas also extruded. For several days necrotic fatty tissue was extruded from the wound. All the pancreatic ferments were found in the fluid.

After the operation there was sugar in the urine as well as acetone and diacetic acid. The latter disappeared in three days, the former in thirteen days. The wound rapidly became smaller, leaving a secreting fistula. This had to be kept open, for when it closed the patient had pain, fever and vomiting. About two months after the operation one could feel a small tender tumor in the gallbladder region (the middle of January, 1909). There were frequent colicky pains in the shoulder and back. February 9, the patient was operated on for removal of the gallbladder, which was full of pus. She was discharged, March 27, apparently recovered and with sugar-free urine.



Sugar tolerance curve in case 1, May 14, 1926; blood sugar, fasting, 168 mg.; 1.75 Gm. of glucose per kilogram (105 Gm.).

The first few months following the operation she felt well and ate heartily in order to gain weight. She never could reach her former weight of 135 pounds (61 Kg.). In October, 1909, she began to suffer from increasing hunger and thirst, and loss of weight and weakness accompanied by colicky pains in the stomach region. The urine contained 4 per cent sugar, and a diagnosis of diabetes was made.

A year later, still diabetic, the patient was having colicky pain off and on. Fatty acid needles and muscle fibers were in the stools. Albu thinks that without doubt the necrosis in the pancreas was a progressive but probably aseptic process leading to atrophy of the organ. The diabetes undoubtedly arose secondarily on the basis of an inflammatory pancreas necrosis.

A master shoemaker, aged 48, a heavy drinker, suffered for a month from periodic attacks of violent abdominal cramps accompanied by vomiting and lasting about twenty-four hours. There was never any jaundice. Constipation was always present. The chest organs were normal. There was no question of gastric crisis. There was gastric anacidity. The liver was enlarged, with a smooth surface and sharp edge. It was not tender. The gallbladder was not palpable. The region of the pancreas was painful on pressure. There was constant mild diabetes. The probable diagnosis was pancreatic lithiasis.

AUTHOR'S CASES

CASE 1.—A woman, aged 61, in whose family history there had never been a case of diabetes, became ill with a violent attack of influenza in February, 1926, in the course of which bronchopneumonia developed. She was quite ill for three weeks and made a slow convalescence. During her illness sugar was not found in the urine.

She had been frail as a girl, and was finally taken from school on account of frequent periods of fever. She was said to have had "weak lungs." She spent a year in Texas for her health. However, for the past forty years she had been well except for occasional bouts with colds and grip. About ten years before at the climacteric she became much overweight, and she was put on a diet which gradually reduced her weight to within reasonable bounds. She was fond of sweets but never ate them to excess. For the past few years she has kept her weight, and has been a most active woman in civic and national affairs. Every year she has been examined, and at no time was there even a trace of sugar in the urine. While still in bed convalescing from her attack of bronchopneumonia, she developed pain in the pit of the stomach. There was nausea but no vomiting, and there was slight fever. A specimen of urine was obtained by her physician, who was astounded to find 3 per cent of sugar. The blood sugar was then estimated. It was 312 mg. per hundred cubic centimeters. She was at once put on a diet which reduced the sugar but did not completely clear it up. Three weeks later she consulted me.

Examination revealed that she was well nourished, although she had lost flesh. She was slightly pale, but she belongs to the very blond type, so that there is always an apparent pallor of the skin. There was no actual anemia. The heart, lungs and abdomen did not show any abnormalities. The blood pressure, which in 1915 was 140 systolic and 80 diastolic, was still the same. The urine contained a small amount of sugar, but albumin and casts were not found. The blood sugar as determined at various intervals is shown in table 1. A tolerance curve is also given in the accompanying chart.

TABLE 1.—*Laboratory Determinations in Case 1*

Date	Blood Sugar, Mg.	Urine Sugar	Carbon Dioxide Reserve
2/20/26	312	++	.....
3/ 5/26	253	+	.....
3/26/26	196	—	.....
4/13/26	171	—	.....
5/14/26	168	—	.....
11/ 1/26	200	—	.....
2/ 8/27	187	—	63-67%

The diet was regulated, and the patient was taught how to examine the urine for sugar (which she does daily, or after any meal when she eats some food not on her diet). Except for the occasional presence of sugar, during the first six months the urine has been sugar free to date. Her health is excellent, and she passed through a period of physical exhaustion following the Christmas season, 1926, without having sugar appear in the urine. At present her total carbohydrate tolerance is from 80 to 90 Gm. One hundred grams of white bread (53 Gm. carbohydrate) eaten at one meal will give sugar in the urine. No attempt has been made to determine her actual tolerance. However, it can be said that her tolerance has not increased during the year since she has developed diabetes. It was thought that after the acute symptoms in the pancreas had subsided she might recover completely and be no longer diabetic. This has been found to be wrong. She is still mildly diabetic with a tolerance which has not varied in more than a year.

CASE 2.—J. W., a man, aged 50, with a negative family history, married, and the manager of a large business, who had always enjoyed good health, and had in recent years been examined several times for life insurance at home offices, had injured his spine in an automobile accident about two years before. Following the accident he had pain in his back off and on associated with a painful spot in the upper part of the abdomen at the left costal border in the nipple line. In May, 1926, he visited the Mayo Clinic, where he was thoroughly examined. Nothing abnormal was found.

About the middle of August, 1926, he became ill with some febrile disease which was not severe enough to confine him to bed. The fever would be present for several days; then there would be an afebrile period for a few days. September 5, he was seen by Dr. F. D. Murphy. Various careful tests and examination were done, including blood cultures and Widal tests, but positive results were not obtained. The fever gradually subsided, and by September 15 he was ready to

return to business. In the absence of all definite symptoms his disease was diagnosed "influenza."

On the afternoon of September 22 his physician was called hurriedly. He found the patient in a state of semicoma. The physician obtained a specimen of urine which showed a large amount of sugar. I saw the patient within half an hour. He occupied a room in a family hotel. As one neared the room one could hear labored breathing, and before entering the room the characteristic odor of acetone was perceptible. He was lying on the bed half clothed. His wife said that in the morning he did not feel well, complained of pain in the upper part of the abdomen, was nauseated, and did not care to eat. Throughout the day he became more and more drowsy, and his breathing became somewhat labored, so that she became alarmed as his condition was evidently growing worse from hour to hour.

He was breathing stertorously in the typical Kussmaul manner. The odor of acetone was present, and although he was in a stupor he could be aroused. When he was aroused and questioned he complained of abdominal pain. The skin was cold, the pulse was small and rapid, and the temperature was subnormal. Physical examination did not reveal anything further. He was removed at once to the hospital, where a blood sugar estimation revealed 550 mg. per hundred cubic centi-

TABLE 2.—*Laboratory Determinations in Case 2*

	Diet				Urine				
	Protein	Fat	Carbohydrate	Total Calories	Glucose	Acetone	Diacetic Acid	Blood Sugar, Mg.	Carbon Dioxide Tension
9/22/26	..	...	..	.....	+++	+	++	550	
9/23/26		Orange juice			+	+	+	450	
9/24/26	..	...	..	.....	—	—	—	149	
9/25/26	..	...	..	.....	Trace	—	Trace	378	
9/26/26	..	...	..	.....	Trace	—	—	281	
9/27/26	..	...	..	.....	—	—	—	151	51.2 per cent
9/28/26	..	...	..	.....	—	—	—	...	
9/30/26	..	...	..	.....	—	—	—	176	
10/ 5/26	..	...	..	.....	—	—	—	220	
10/ 6/26	80	168	75	2,440	—	—	Trace	296	
10/ 9/26	70	187	74	2,206	—	—	—	220	
10/12/26		Refused food							
10/13/26		Orange juice			—	—	—	186	
10/14/26	..	...	..	.....	+	++	+++	...	
10/15/26	..	...	..	.....	—	—	—	102	
10/16/26	10	9	28	226	..	..	..	...	62.2 per cent
10/18/26	26	67	75	1,007	—	—	—	188	
10/20/26	..	...	..	.....	+	..	..	113	(Operation)
10/23/26	..	...	..	.....	+	—	—	194	
10/25/26	..	...	..	.....	—	—	—	160	
10/29/26	43	47	59	832	—	—	—	...	

meters. He was at once given 40 units of U-20 and orange juice. Between 7 p. m. and 8 a. m. he received 180 units of insulin with orange juice. The patient was then quite conscious, the pulse 112 a minute and of good quality. The blood sugar was 149 mg., and the urine was sugar free. Diacetic acid was present in the urine in only a trace. It never was present in large amounts.

The stools contained large amounts of free fat. The condition was controlled well with small doses of insulin, as little as 10 units being given with a diet of 67 Gm. of protein, 187 Gm. of fat and 75 Gm. of carbohydrate—a total of 2,270 calories (table 2).

In spite of his sugar-free state the patient vomited occasionally. Fever was quite irregular. A blood count, October 15, showed a mild secondary anemia and a normal leukocyte count. Free hydrochloric acid was not present in the gastric contents following an Ewald test meal. The carbon dioxide tension was 62.2. Gallbladder lesions were not found. The patient was apparently recovering, although he had constant discomfort in the upper part of the abdomen, when the vomiting became uncontrollable. After consultation with surgeons, it was thought best to open the abdomen. This was done, October 20. The pancreas was found to be about four times its normal size. The organ was extremely indurated and smooth throughout its entire length, except for some nodules along the lower left border. The capsule was incised and a drain left in down to the gland. The patient had a sharp febrile reaction with rapid pulse. Following operation he appeared to be convalescing, although his temperature was always irregular. By October 29, it became normal. He seemed to be improving, when he suddenly grew worse and died, October 31.

Postmortem examination made by Dr. E. L. Miloslavich showed the following positive conditions: The spleen was enlarged and somewhat soft. The medullary substance of both suprarenals was greatly increased. The kidneys were small and showed numerous atrophic depressions of the surface with several small cortical cysts. The upper retroperitoneal glands, particularly those near the pancreas, were enlarged. There was follicular colitis with edema of the mucous membrane of the large bowel. The pancreas was thin and small; it measured 13.5 cm. in length and 2 cm. in thickness. There was diffuse fibrosis. At the extreme tail there was a cheeselike area measuring 6 cm. in diameter, partly surrounded by fibrous tissue. The capsule of the right half was diffusely injected.

Sections of the pancreas taken from body and tail showed some differences. In all, the architecture of the gland was completely destroyed; there were no acini and no islands. In sections from the body the gland tissue was replaced for the most part by fibrous tissue in various stages of development from the early collection of fibroblasts to fairly well developed strands separating the sections into irregular lobules. Within these areas were scattered small circular areas lined by a single layer of short columnar cells, probably the remains of the pancreatic ducts. In many places these ducts showed evidence of proliferation, giving to one glancing superficially at the section the appearance of carcinoma of the pancreas. Careful study showed that these appearances were due to attempted regeneration of acinous tissue. Elsewhere the tissue was infiltrated with small round cells in large and small groups.

Sections from the tail showed similar areas, but added to this were widespread necrotic areas in which cellular elements were not found and considerable blood pigment had infiltrated the tissue in all sections. Most of this blood appeared to be the result of old hemorrhage, as red cells were absent. The lesion was a necrosis of the pancreas with hemorrhagic infiltration and a chronic fibrosing pancreatitis.

CASE 3.—Through the kindness of Dr. F. D. Murphy I am able to add notes of another quite similar case in which, unfortunately, postmortem examination was not permitted.

W. C., a man, aged 69, was seized, April 1, 1926, with excruciating abdominal pain while on his way to work, which caused him to double up. He reached his place of business and tried to have a bowel movement by giving himself enemas. He had no result. He then called a physician and was removed to the hospital.

There was one interesting incident in his past history. Twenty years before he had had pneumonia followed by empyema, which was not drained. Since then he had had pain over the entire left side, with loss of sensation in the arm and leg. In spite of the pain, he attended daily to his business. Two weeks before his present illness he slipped and fell on the ice, striking the buttocks. This jarred him, so that he was unable to be at work for several days. He had suffered for years from constipation, but otherwise had enjoyed fair health in spite of his constant pain.

Physical examination showed him to be well developed and well nourished for his age. Abnormality of any kind was not found in the chest organs. The blood pressure was 114 systolic and 64 diastolic. The pulse was increased in rate. The abdomen was greatly distended and was everywhere tympanitic. Tumor masses were not felt, and special areas of pain were not found. It was thought that the patient had intestinal obstruction from an unknown cause.

Laboratory examinations revealed that the urine was cloudy, with a specific gravity ranging from 1.012 to 1.020; it was acid and contained albumin from plus to 4 plus. Sugar was reduced with from one to two drops, and a trace of acetone was found. Hyaline and granular casts were noted microscopically. The blood sugar, April 5, was 360 mg.; April 7, 460 mg.; April 9, 250 mg. The blood nitrogen varied from 56.9 to 71.8 mg.; the nonprotein nitrogen was 120.4 mg. April 7, occult blood was found in the feces (there was no mention of fat).

On admission, the red cells were 4,770,000; the white cells, 22,000; the hemoglobin 90 per cent, with 83 per cent of

polymorphonuclear cells. Roentgen-ray examination of the gastro-intestinal tract did not reveal any obstructive lesion.

A tentative diagnosis of either intestinal obstruction or thrombosis of the mesenteric artery was made. Operation was performed. A hemorrhagic swollen pancreas with areas of fat necrosis in the neighboring fat was found. The patient died.

CASE 4.—I am indebted to Dr. C. D. Christie of Cleveland for the notes of this case, which was reported by him at the meeting of the American College of Physicians during the clinical week in February, 1927.

A woman entered the Lakeside Hospital, Cleveland, Aug. 9, 1926, complaining of sudden severe pain in the back and in both sides of the abdomen beginning six days before. Vomiting had occurred on the third day with looseness of the bowels, and the stools were described as being black at times. Thirst rapidly developed, but she could not retain anything in the stomach. About the fourth day of her illness she noted that she was breathing rapidly but was not short of breath.

The family and past history were unimportant. On admission to the hospital she was semicomatose, breathing rapidly, slightly cyanotic and groaning with pain. The abdomen was slightly distended, and there was tenderness in the epigastrium which gave the impression of an indefinable mass. There was slight fever and a pulse of 120 for a few days. The urine showed a specific gravity of 1.025, and contained quantities of acetone and diacetic acid, with more than 3 per cent of sugar. The blood sugar on admission was 546 mg. per hundred cubic centimeters of blood. Examination of the stools showed many fatty acid crystals and occult blood but no free fat. The Wassermann reaction was negative.

Under active treatment the patient rapidly became sugar free, but the pain in the abdomen and the rapid pulse continued for about a week, gradually subsiding to convalescence. There was no sugar after her second day in the hospital. She left the hospital after a stay of about twenty days with an unlimited diet and no sugar in the urine.

COMMENT

Although there are but few cases reported, certain rather interesting speculations suggest themselves. I have already noted the anatomic fact that there are twice as many islands in the tail as in any other equal sized portion of the pancreas. To my knowledge no case of disease of the head of the pancreas has ever been followed by diabetes. In this small series, four of the cases of pancreatitis which were followed by diabetes presented lesions in the tail; those of Norero and Caro and Winkler, one of Albu's and one of mine. Norero's patient had had a previous attack of abdominal pain, and at autopsy following the second attack the head of the pancreas was found to be fibrosed and the tail destroyed by necrosis. The question naturally arises, Is necrosis of the tail end the determining lesion in the production of diabetes? Pancreases differ in the numbers of islands [11] and in the distribution of the islands; hence a combination of a certain pancreas and a lesion at the tail is conceivable in certain persons when diabetes would result.

Allen [12] has shown experimentally that partial pancreatectomy can be done without the animal becoming diabetic unless it is overfed on carbohydrates. Albu's first case strongly suggests a similar possibility in the human being. In this case, the patient had a large necrotic cyst of the tail of the pancreas and then an empyema of the gallbladder. In her effort to increase her weight she ate abundantly and in a few months was frankly diabetic. Norero's patient may have acted thus, as he did have some suggestive symptoms several months before his final illness. The second case of Dunn, Vatcher and Woodwark also seems to fall in this category. All these cases were preceded by an illness proved or strongly suggestive of acute pancreatitis.

Christie's case is unusual in that the patient apparently recovered from the diabetes. That is what one might *a priori* expect. An acute lesion injures the gland temporarily, destroying only a portion. As recovery takes place the islands, injured only for the time being by the violence of the attack, again begin to function. I expected this to happen in my case 1, but it did not.

As regards my first two cases, there are some features common to the two. Neither of these patients had any family predisposition to diabetes. Both were in the middle age period of life. Both were (one still is) most energetic persons, frequently using their energy to the limit of its endurance, so that each had to take occasional periods of enforced rest. Both had apparently the same illness, influenza, preceding the onset of the diabetes. In case 1 it was a bronchopneumonia, in case 2, a typhoid-like illness. Both had been under competent observation over a period of years and were known to be free from any symptom or sign of diabetes. The sugar was found in the urine during convalescence from the influenza and directly following a sharp attack of epigastric pain. The brusque onset of coma in case 2 is unusual. This man had only a small amount of diacetic acid in the urine, which rapidly disappeared. It appeared only once in any appreciable amount. His death was sudden and is not wholly to be explained. True, the examination of the pancreas showed that he was a total diabetic, as much so as a completely depancreatized dog. He was receiving enough food with insulin to keep him sugar free. His death could scarcely be laid to that cause. Possibly it was a suprarenal death. The medulla of both suprarenals was distinctly abnormal. Sudden death in suprarenal insufficiency is known to occur. No other cause was found.

What relationship did the influenza have to the pancreatitis? It has been shown that an attack of influenza predisposes to infection with other organisms, and it is a well recognized clinical observation that following influenza many previously compensated hearts begin to show decompensation. There is some evidence that the influenza toxin attacks various organs more profoundly than does the toxin of any acute disease of a like grade of severity.

Finally, I have been unable to find in the literature reports of any cases similar to the cases 1 and 2 here reported, in which diabetes followed on an attack of pancreatitis and was preceded by influenza.

SUMMARY

In four cases of acute pancreatitis, followed by diabetes, two were preceded by influenza. Two apparently occurred as primary acute pancreatitis, one (case 3) being of the hemorrhagic form with fat necrosis. A few such cases were found to have been reported in the literature.

193 Prospect Avenue.

11. Cecil, R. L.: J. Exper. Med. 16: 1-16, 1912.
12. Allen, F. M.: Glycosuria and Diabetes, Boston, W. M. Leonard, 1913.

Significance of Growth as an Index to Health.—Growth is always one of the signs of health in young animals and children. This does not mean that retarded growth is always a sign of ill health. There are periods in the individual's life and certain times of the year when slower growth may be normal. For the child to be led to believe that he is ill, simply because he is growing less rapidly, is a serious mistake. This is particularly so if the health examination records show no physical defects, or underlying causes of ill health. —Report, Joint Health Committee, Health Education, p. 27.

DIABETIC GANGRENE IN THE SOUTH*

I. I. LEMANN, M.D.
NEW ORLEANS

It has been suggested that a possible etiologic factor in the causation of diabetic gangrene is the state of the weather. Beard [1] noted that 95 per cent of the diabetic gangrene cases appearing at the University Hospital in Minneapolis entered during the winter months. Blotner and Fitz,[2] in reporting sixty-nine cases of diabetic gangrene at the Peter Bent Brigham Hospital in Boston, observed that their cases also showed a greater frequency in the colder months of the year than during the warmer months, though their experience was by no means as striking as that of Beard. As corroborative evidence on the importance of cold in producing diabetic gangrene, they quote McLester of Birmingham as stating that it is an extremely rare complication in his experience, and Paullin as reporting that he had seen only fifteen cases of diabetic gangrene in 560 diabetic cases in Georgia. In the light of these suggestions, it seemed profitable to analyze my own series and to study the incidence of diabetic gangrene in the patients at Charity Hospital and Touro Infirmary.

My records show that of 471 diabetic patients (private and hospital) whom I have studied personally, there are twenty-five who at some time suffered from more or less extensive gangrene of the extremities. The incidence of gangrene in my series is therefore 5.3 per cent, which is to be compared with the 3 per cent incidence reported by Joslin [3] in a series of nearly 3,000 cases of diabetes, and the 2.65 per cent reported by Paullin (fifteen in 560 cases of diabetes). On this basis there cannot be said to be any difference in favor of the milder climate of the South. If Paullin's series and mine are combined, there are forty cases of diabetic gangrene in 1,031 diabetic patients, an incidence of 3.8 per cent—practically Joslin's experience.

In contrast with these figures may be placed those obtained from a study of the statistics of Charity Hospital and Touro Infirmary. During the six years 1921-1926, 439 diabetic patients were admitted to Charity Hospital; of these seventy-nine, or 18 per cent, had gangrene. At Touro Infirmary during this six-year period, 201 diabetic patients were seen by other physicians; twenty of these patients, or 10 per cent, had gangrene. These figures may be compared with the experience at the three great hospitals of Boston. In the five years 1921-1925, the Massachusetts General Hospital had 600 diabetic patients, fifty-eight with gangrene, an incidence of 9 per cent; the Boston City Hospital had 967 diabetic patients, 109 with gangrene, an incidence of 11.2 per cent; and the Peter Bent Brigham Hospital had 969, sixty-nine with gangrene, an incidence of 7 per cent. It can readily be seen that there is a marked discrepancy between Joslin's 3 per cent and the Boston City Hospital's 11.2 per cent; and, on the other hand, between the 3 per cent of Paullin's series, the 5.3 per cent of my own private series and the 18 per cent of the Charity Hospital. The 10 per cent of the Touro Infirmary series, composed partly of private and partly of ward patients, is very much in line with that of Boston hospitals.

There is no discrepancy, however, between the private series, North and South. In the hospital series it would appear that the incidence of gangrene among diabetic patients in the South is as great or greater than in the North. I have not undertaken any tabulation of gangrene cases in New Orleans according to the month or seasons when patients were admitted or were first observed with gangrene. There is no severe weather in New Orleans at any time; hence such a tabulation would not yield any important information, or only fallacious information. It is well known that patients may suffer the initial manifestations of gangrene from days to months prior to their presenting themselves for treatment. It is apparent that no influence is to be attributed to the climate.

Further analysis of the figures, however, will show that all the important factors producing gangrene are operative in New Orleans as well as elsewhere.

HYGIENE OF THE FEET

The 439 diabetic patients in Charity Hospital were divided, as follows: white, 211; negro, 228. Of the 211 white diabetic patients, thirty, or 14 per cent, had gangrene. Of the 228 negro diabetic patients, forty-nine, or 21 per cent, had gangrene. Out of every five negro diabetic patients applying for hospitalization, one had gangrene. When the elements of poverty and ignorance in the negro are considered, the significance of these figures may be appreciated. Especially is this the case when they are placed in juxtaposition to those of the private series of Joslin, Paullin and Lemann. Negroes wear poor shoes, full of unevenness, even of holes, and their socks are in like condition. Their feet are neglected, and in many cases seldom washed. Joslin [3] has preached vigorously the gospel of the care of the feet in diabetes, saying that any diabetic person 50 years of age had better bathe his feet as carefully as his face if he wishes to avoid gangrene. He quotes the experience of Muryama and Sakaguchi, who did not have a single death from gangrene in their forty-nine fatal cases of diabetes, and this despite the marked arteriosclerosis of Japanese diabetic patients, and points out that the Japanese wear thick socks and sandals which do not compress the feet. He might have added that the Japanese are exceedingly scrupulous in the hygiene of the feet. The bad hygiene of the negro is, of course, equally potent in precipitating senile gangrene when diabetes does not exist; for example, at Charity Hospital, among 67,533 white admissions during 1921-1925, there were thirty-five cases of senile gangrene, an incidence of 0.52 per thousand, while among 53,796 negro admissions, there were fifty cases of senile gangrene, an incidence of 0.94 per thousand.

TABLE 1.—*Comparative Incidence of Gangrene in Diabetes, North and South*

	Admissions	Diabetes	Gangrene	Percentage of Diabetic Patients with Gangrene
Joslin	.....	3,000	..	3
Paullin	.....	560	15	2.65
Lemann	.....	471	25	5.3
Massachusetts General Hospital	33,734	600	55	9
Peter Bent Brigham	.....	969	69	7
Boston City Hospital	97,618	967	109	11.2
Charity Hospital	148,621	439	79	18
Touro Infirmary (patients of other physicians)	.....	201	20	10

* From the Department of Medicine, Tulane University School of Medicine, and the Medical Services of Charity Hospital and Touro Infirmary.
* Read before the Section on Practice of Medicine at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 18, 1927.

1. Beard, A. H.: Minnesota Med. 8: 436 (July) 1925.
2. Blotner, Harry; and Fitz, Reginald: Boston M. & S. J. 194: 1155 (June 24) 1926.
3. Joslin, E. P.: Treatment of Diabetes Mellitus, ed. 3, Philadelphia, Lea & Febiger, 1923, p. 636 et seq.

It is recognized that these comparisons would be misleading if there were a larger proportion of old people in the negro population of the hospital than among its white population. While data on this point are not available without immense trouble, still it can be definitely stated that such a disparity in the distribution of senile patients does not exist. I shall discuss other explanations for the greater frequency of gangrene among negroes with diabetes; however, one familiar

TABLE 2.—*Comparative Incidence of Gangrene in White and Negro Persons with Diabetes, Charity Hospital, 1921-1926*

	Admissions	Diabetes	Gangrene	Percentage of Diabetic Patients with Gangrene
Total	148,671	439	79	18
White	81,948	211	30	14
Negro	66,673	228	49	21

with their habits and economic status cannot fail to be impressed by the important rôle played by trauma and bad hygiene. The fact that gangrene is also more common among poor whites of the hospitals than among the private patients is corroborative of the same point.

The larger incidence of gangrene among diabetic negroes may be due in part to the fact that the negroes are not likely to seek medical aid until they are seriously ill. The milder cases of diabetes among them, therefore, are apt to be overlooked. Serious crippling, such as that brought about by gangrene of the feet, forces them into the hospital. There results an apparent concentration of gangrene as well as of serious forms of diabetes among them. In this connection should be mentioned another very striking phenomenon, namely, the increasing proportion of negroes in the diabetic population of Charity Hospital. Table 3 shows that while the general incidence of diabetes rose from 0.635 per thousand admissions in the decennium 1898-1909 to 3.0 per thousand in the period 1921-1926, and while the white ratio rose from 0.72 per thousand to 2.4, the negro ratio rose from 0.47 to 3.5. That is to say, the white ratio was increased by a little less than fourfold, while the negro ratio was increased by eightfold. The frequency of diabetic gangrene among negroes has

TABLE 3.—*Increase of Incidence of Diabetes at Charity Hospital*

	Admissions			Diabetes			Diabetic Patients per 1,000 Admissions		
	Total	White	Colored	Total	White	Colored	Total	White	Colored
1898-1909	101,565	61,298	40,265	64	45	19	0.63	0.73	0.47
1909-1919	160,044	92,040	69,004	194	135	59	1.2	1.4	0.86
1921-1926	148,671	91,948	66,673	439	211	228	3.0	2.3	3.4

naturally become greater. It is not possible to make a comparison between the incidence of diabetic gangrene in 1898 and now because formerly the Charity Hospital reports listed gangrene not by etiologic classification but by structure involved. In the years 1898-1908 all gangrenes were far less common than now and diabetic gangrene rare, naturally, as there were few cases of diabetes.

SYPHILIS

Another factor to be considered in evaluating the preponderating gangrene ratio among negroes is syphilis. Syphilis is notoriously common among negroes. Joslin [3] suggested that syphilis may play an important rôle in the causation of gangrene in diabetes. He found that while only 1.6 per cent of a thousand diabetic patients gave a positive Wassermann reaction there was a positive Wassermann reaction in 11 per cent of the diabetic gangrene cases. He concludes:

> Therefore, a positive reaction or history of syphilis was about seven times as common among those having gangrene as among a thousand cases of diabetes, or among 300 diabetics over 50 years of age. Of the diabetics having syphilis, 10 per cent had gangrene. Of all the diabetics, 2.8 per cent had gangrene.

In the light of the well known effect of syphilis on the blood vessel walls, its influence in predisposing the diabetic person to gangrene could be readily understood. The negro is particularly prone to disease of the vascular system. The Wassermann test was made in 330 diabetic patients at Charity Hospital. There was a positive reaction in only twelve cases, or 3.6 per cent. The Wassermann reaction in fifty-three cases of diabetic gangrene was positive in two cases, or 3.8 per cent (table 4). Of the 201 patients seen by other physicians at Touro Infirmary, the Wassermann test was made in 101 cases. It was positive in six cases, or 6 per cent.

TABLE 4.—*Wassermann Reactions in Three Hundred and Thirty Cases of Diabetes, Charity Hospital*

	Total	Positive	Negative	Per Cent Positive
Diabetic whites	137	3	134	2.1
Diabetic negroes	140	9	131	6.4
White gangrene	17	0	17	0
Negro gangrene	36	2	34	5.5

TABLE 5.—*Distribution of Diabetic Gangrene by Age, Charity Hospital* *

	Diabetic Patients			Diabetic Gangrene			Incidence of Diabetic Gangrene, per Cent		
Age	Total	White	Colored	Total	White	Colored	Total	White	Colored
0-40	112	59	53	1	..	1	0.8	0	1.8
40-50	100	33	67	17	6	11	0.17	0.18	0.16
50-60	127	62	65	31	8	23	0.24	0.13	0.35
60+	96	57	39	30	16	14	0.31	0.27	0.36

* Age was not given in four cases.

In the twenty cases of gangrene, Wassermann tests were made in only seven instances, all of them negative. In my own series of twenty-five diabetic gangrene cases, Wassermann tests were made in all but three. Not a single patient gave a positive reaction. On the other hand, a positive Wassermann reaction or other evidence of syphilis was found in fourteen of my total series of 471 diabetic patients. Not one of these syphilitic patients with diabetes suffered from gangrene while under my observation. The evidence is strong, therefore, that syphilis does not play an important rôle in causing diabetes or in predisposing diabetic persons to gangrene.

AGE

The effect of age in producing gangrene in diabetic persons is illustrated in tables 5 and 6. Of the thirty-nine diabetic negroes above the age of 60 in the Charity Hospital fourteen, or more than one third, had gangrene. Of fifty-seven white patients with diabetes above the age of 60 at the Charity Hospital, sixteen had gangrene, or a little more than one out of four. In the Touro series combined with my white patients, the incidence of gangrene in the diabetic patients above 60 was only one in ten. It can be seen, therefore, that the influences operative in the negro race are more potent in producing gangrene than is the influence of age. Of these

influences I would stress again the proneness of the negro to vascular degeneration, and his ignorance, poverty and bad hygiene.

ARTERIOSCLEROSIS

The foregoing statistics as to age indicate the important rôle played by arteriosclerosis. Our experience is precisely what that of others has been. Frequently the sclerosed vessels have been demonstrated radiologically prior to operation. Almost invariably at the operation and on examination of the amputated limbs, extensive calcification of the arteries was found. I have not made a study up to the present time of the blood fat, and have nothing to contribute as to the validity of the theory advanced by Labbé,[4] Letulle and others. They have suggested that the diabetic arteriosclerosis may be due to the long continued hypercholesterolemia. Labbé[4] writes: "It has been shown that the increase of cholesterin in the blood coincides with the deposit of this lipoid in the damaged wall of the arteries." Gray[5] has shown that the higher the percentage of cholesterin in the blood, the more unfavorable the prognosis. Warren and Root[6] have observed that the vascular disease is more closely related to the duration of the disease than to the patient's age at the time of the onset of gangrene. Gangrene is not the initial manifestation of arterial obstruction. Several of my patients, many months prior to the actual onset of the gangrene, had pain in the legs and intermittent claudication.

TABLE 6.—*Distribution of Diabetic Gangrene by Age, Combined Series, Touro Infirmary and Lemann* **

(White patients only)

Age	Diabetes	Diabetic Gangrene	Incidence of Gangrene, per Cent
0-40	137	1	0.7
40-50	137	4	2.8
50-60	206	20	10
60+	187	20	10.7

* Five negroes in Lemann's series not included in this table.

TROPHIC DISTURBANCE

Labbé[4] is quite correct in dividing gangrene into three groups: (1) gangrene through endarteritis; (2) gangrene through neuritis, and (3) gangrene through infection. The group in which gangrene is superimposed on trophic ulcers is not as large as the group in which the cause is essentially a primary endarteritis. The trophic ulcer group, nevertheless, is important. In it are six of my own twenty-five cases. The steps by which the gangrene comes to exist are, first, production of the ulcer as a result of neuritis (trophic disturbance); second, infection of the ulcer, and, third, gangrene.

INFECTIONS

Reference has already been made to the gangrene resulting from infection due to trauma and to infections of trophic ulcers. There are, in addition, other gangrenes occurring spontaneously (without trauma and without preceding trophic ulcer), in the course of a general infection (septicemia) or in the course of an infection localized in some region of the body far removed from the site of the gangrene. I observed an extensive dry superficial gangrene of the toes in an obese man, aged 52, previously known to have had diabetes, who had a ruptured gangrenous appendix with free pus and feces in the peritoneum. The gangrene developed about a week after the operation when the general condition of the patient was good. Thanks to insulin, his life was saved. The toes were handled conservatively and healed without loss of tissue.

DECUBITUS

A woman with chronic valvular disease, who had suffered from heart failure but who did not have edema or any other evidence of heart failure at the time, developed during her convalescence from diabetic coma an extensive superficial gangrene of the heel. Apparently the vessels were not sclerosed, and the dorsalis pedis and posterior tibial were pulsating normally. Trophic ulcer was not present. The patient did not have local trauma, or infection, local or general. There was no burn from a hot water bottle during the coma; besides, the part involved was that portion of the heel resting on the bed to which a hot water bottle could not have been applied.

CONCLUSION

In 1,111 cases of diabetes, 124 cases of diabetic gangrene occurred, an incidence of 11 per cent. This incidence, when compared with that observed in Boston, does not indicate that any influence can be attributed to weather or climate. Consideration of the incidence in whites and negroes, in private and in free patients, would seem to point to the great importance of ignorance and poverty, and hence to poor hygiene, as causative factors. Syphilis does not seem to play an important rôle. All other factors pointed out by others—age, arteriosclerosis, trophic disturbances and infection—are found to be as potent here as in colder climates.

3503 Prytania Street.

4. Labbé, M.: Presse méd. **33**: 281 (March 4) 1925.
5. Gray, Horace: Am. J. M. Sc. **168**: 35 (July) 1924.
6. Warren, Shields; and Root, H. F.: Am. J. Path. **1**: 415 (July) 1925.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. WARFIELD AND LEMANN

DR. FREDERICK M. ALLEN, Morristown, N. J.: Dr. Warfield's observations calling attention to pancreatitis in the etiology of diabetes are timely and important. I think that the origin of diabetes must always be sought in the pancreas. Any supply of insulin from other organs must be very small in amount and negligible in respect to the etiology of diabetes, as shown by the extremely severe diabetes which always follows removal of the pancreas. Some years ago I showed that diabetes could be produced in experimental animals by an acute pancreatic inflammation which does not immediately destroy the islands and does not give rise to fibrosis. It is valuable to have clinical observations, like those of Dr. Warfield, showing the onset of diabetes after a demonstrated pancreatitis. But autopsy observations indicate that the pancreas is one of the most frequently diseased organs in the body. In most cases of severe, acute general infection, the pancreas shows, at least, some focal necroses, and acute pancreatitis is an occasional observation in patients dying of various diseases, without clinical symptoms or signs of pancreatic trouble. Though chronic pancreatitis or repeated subacute exacerbations of pancreatitis are evidently responsible for some cases of diabetes, I think that the study of the subject will ultimately prove that acute blood borne infection is the most common cause, especially in the young, and that diabetic symptoms then follow immediately or, more often, after months or years of functional wear and tear. Furthermore, it seems probable that streptococci are frequently responsible for diabetes, as they are for other visceral diseases. Sometimes the pancreatic injury seems to be traceable to mumps, typhoid or almost any other acute illness. It is well to remember that influenza also has a place in this list, and from published and unpublished evidence it appears by no means a rarity for an influenzal attack to be the beginning of diabetes. Dr. Lemann's analysis is interesting, and obviously all such information should be utilized in prophylaxis. Nevertheless, it should be emphasized that the chief

and fundamental cause of diabetic gangrene is diabetes. Not only the specific deficiency of healing power, but also arteriosclerosis, which is the basis of typical gangrene, must be attributed to uncontrolled diabetes. The fact that arteriosclerosis is demonstrable in all diabetic patients who have had glycosuria for ten or fifteen years is a matter of interest in the study of arteriosclerosis in general. From the practical standpoint, the diabetic person who ignores his glycosuria because of the absence of symptoms should be warned that his arteries are thickening year by year and that he thus becomes increasingly subject to the dangers of gangrene and other vascular complications. All the complications can be prevented completely by rational control of the sugar from the early stages of the diabetes.

DR. ELLIOTT P. JOSLIN, Boston: If 90 per cent of diabetic patients could be persuaded to wash their feet carefully each night, 90 per cent of the gangrene would disappear. I have long held this belief, and Dr. Lemann's paper tends to confirm it. Diabetic gangrene is a loose term, and it is often assigned not alone to diabetic gangrene per se but to infections of the lower extremities as well. Dr. L. S. McKittrick, who analyzed 119 cases, furnished me with data showing that gangrene per se is as common in summer as in winter, but that foot infections, so frequently seen in diabetes, occurred much more commonly in the winter than in the summer months. In the winter months the care of the feet is far less well carried out than it is in the warm weather, and I think that possibly this may explain the statements which have appeared in the literature; namely, that in the winter gangrene is more common in northern climates.

DR. JAMES E. PAULLIN, Atlanta, Ga.: The relationship existing between diabetic gangrene and arteriosclerosis was first mentioned by Israel in 1882. As is well known, any process that materially interferes with the blood supply of an extremity predisposes to the development of gangrene whether it is trauma, infection or arteriosclerosis. Among my private diabetic patients, gangrene is a rather rare complication, occurring in only 2.3 per cent of the cases, whereas in the negro medical wards of the Grady Hospital it has occurred in 18.3 per cent of the cases. The latter figure agrees closely with those of Lemann for the negroes of New Orleans. We feel that the same conditions—bad hygiene, badly fitting shoes, no shoes, trauma and infection—which are present in the patients we have observed, as well as in those seen by Lemann, make the negro more susceptible to gangrene. While climate cannot be said to play any considerable part in the pathologic processes predisposing to the development of gangrene, I am not convinced that cold weather or marked changes in temperature do not play some part in precipitating its onset. Of the cases of gangrene observed in my series, 79 per cent occurred during November, December, January, February and March. No cases occurred during July, August, September and October. However, the cases were relatively few, and this fact must be borne in mind before one attempts to make a positive statement concerning the relationship between climate and the incidence of gangrene. I am sorry that Dr. Lemann did not study the occurrence of his cases by months. While it is true that New Orleans does not have any very cold weather, the variation in temperature among those accustomed to warm summers may be sufficient to play some part in predisposing to gangrene.

DR. ALLAN C. EUSTIS, New Orleans: On account of the close anatomic relationship of the common bile duct and the head of the pancreas, infection travels readily from the former to the latter. In a series of thirty cases of transient glycosuria, which I reported several years ago, attention was called to the frequency with which infection of the gallbladder was present; and it was suggested that as in two of these cases definite diabetes had developed after repeated attacks of mild gallbladder infection, possibly many other cases of diabetes may be due primarily to a diseased gallbladder. One should always first consider the gallbladder in dealing with pancreatitis, and, vice versa, if the medical man will constantly think of pancreatitis and diabetes when dealing with an infected gallbladder there will be fewer medical treatments of gallbladder disease in the future.

DR. A. I. RUBENSTONE, Philadelphia: Occasionally, and in my own experience within the last year, patients with a history of very mild diabetes or without a diabetic history are brought into the hospital with acute abdominal pain simulating intestinal obstruction, the condition proving to be diabetic acidosis ending in coma. With present methods of treatment they often recover promptly with no upper abdominal symptoms remaining. Apparently, not only acute hemorrhagic pancreatitis can account for the symptoms, but also, more probably, an acute pancreatic edema that causes total sugar intolerance. This explanation seems a rational one in accounting for a sudden acidosis and coma following dietary indiscretion in severe diabetes and in potential diabetes complicated by acute infections and toxemia. I see patients whose condition usually requires 15 units of insulin suddenly require 100 or 150 units a day in the presence of an acute infection. This, I feel, is not due so much to the inhibitory action of toxin on insulin as to the fact that an acute edema of the pancreas abolishes pancreatic tolerance, so that the patient subsists only on insulin. As the edema lessens, the tolerance increases and the upper abdominal crisis in diabetic acidosis and coma may be due to this acute pancreatic edema. With reference to the frequency of diabetic gangrene, if it is only borne in mind that arteriosclerosis is always associated with diabetes, and that the lower extremities are apt to be first affected with gangrene, one would never fail when examining a diabetic patient to look at the feet and feel the dorsalis pedis arteries at every office visit, and when sluggish circulation is evident to treat this before gangrene actually sets in. Joslin has certainly taught us how to avoid diabetic gangrene. Only recently I saw a woman who had undergone one eye operation by a competent ophthalmologist and while waiting for an operation on the other eye complained of numbness in a foot, which proved to be diabetic gangrene.

DR. LOUIS M. WARFIELD, Milwaukee: In regard to the pancreatitis, the gallbladder was not a factor in the etiology. We must recognize that there is frequently acute pancreatitis in the absence of gallbladder infections.

SIMPLE CONGENITAL ANORECTAL STRICTURE WITH MEGACOLON IN EARLY INFANCY

REPORT OF SIX CASES *

JOSEPH BRENNEMANN, M.D.
CHICAGO

Congenital anorectal stricture, unaccompanied by other anomalies of that region, is apparently a rare condition, if one may judge from the literature. Especially infrequent are reports of cases seen in infancy, or as a cause of megacolon. In support of these statements I might quote from two recent (1923) papers of Vernon David: [1]

The different types of imperforate anus, varying from complete lack of formation of the rectum to the incomplete formation of the rectum with fistulae leading from the rectal pouch to the bladder, urethra, vagina and perineum, are well known and well described in the many textbooks of embryology, pathology and surgery. In contrast, congenital strictures of the rectum with the external anal opening apparently normal are rare, and not only is scant mention made of them in textbooks but reported cases are very infrequently seen.

In a second paper, after referring to an operation for megacolon reported by Treves, in 1898, in a child of 5 years with a tubular constriction of the pelvic portion of the rectum, David [2] adds: "No other

* Read before the Section on Diseases of Children at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 18, 1927.

1. David, V. C.: Congenital Stricture of the Rectum in Children, S. Clin. N. Amer. 3: 1115-1125 (Aug.) 1923.
2. David, V. C.: Congenital Rectal Stricture as the Cause of Infantile Megacolon, Surg. Gynec. Obst. 37: 197-201 (Aug.) 1923.

record of megacolon in childhood associated with a congenital rectal stricture was found (in the literature) though undoubtedly they have been observed." David, himself, reported three cases of congenital anorectal stricture with megacolon in children aged 16 months, 4 years and 7 years. I have not found any in the literature since that time, and do not know of any reported in early infancy for more than a hundred years. I have not, however, made an exhaustive search through the voluminous literature on Hirschsprung's disease and megacolon, on which alone there have been some 250 papers in the last twenty years. Probably others have been reported and doubtless many more have been seen.

The present report is based on the following series of six cases, all occurring in early infancy; all presenting a similar picture of which abdominal distention, constipation and great distress were the outstanding features; all, apparently, cases in which there were uniform pathologic changes, and all promptly relieved of the obstruction by simple digital dilation.

REPORT OF CASES

CASE 1.—Baby E. H., seen sixteen years ago at the age of 2½ weeks, had been breast fed, and his mother stated that he had cried almost constantly since birth. From the very first his abdomen had been somewhat distended. He never had a bowel movement except with an enema. The enema was commonly retained for a long time and was then expelled with a loud explosion. He passed gas spontaneously only at rare intervals, and then with a report that could be heard at a great distance. He rarely vomited. His weight had dropped from 9 pounds 2 ounces (4.2 Kg.) to about 8 pounds (3.6 Kg.). Nothing had given any relief from the abdominal distention, the constipation, and from the most piteous and persistent crying, except the temporary relief from an enema.

On examination the baby was found to be somewhat undernourished but with no evident abnormality except a somewhat distended abdomen. At fairly regular and frequent intervals he would cry out as if in intense, colicky pain. At such times, and then only, a large coil of intestine would suddenly stand out as a tense, hard, straight tube extending from about the middle of Poupart's ligament on the left side, under and a little to the right of the umbilicus, and ending under the liver in the right hypochondrium. It seemed to be from an inch to an inch and a half in diameter, and could easily be grasped, the fingers and thumb passing two thirds of the distance around it. After a short paroxysm the distended coil would relax and soften, and would nearly be lost to sight and touch. The child would immediately go to sleep, only to be reawakened in a short time by another paroxysm of exactly the same nature. The lower end of the tube seemed to end in a narrower cordlike portion that led me to think that there was a constriction at this point. To see whether I could get any light on the nature and location of this apparent, but evidently nonexistent stricture, I made a rectal examination. To my surprise, I found that I could not insert even the tip of my little finger without using more force than I felt to be safe. About 1 to 2 cm. above the normal anal orifice my finger encountered a definite, sharp, hard nonelastic ring that felt like fibrous tissue. I then passed a medium sized soft rubber catheter without much difficulty. After the catheter had been inserted about an inch, the gas escaped through it with a hissing sound like that of air escaping from a tire when the valve stem is pushed down. At the same time the coil of intestine and, to some extent, the whole abdomen, flattened out in like manner; the baby was completely relieved and instantly fell asleep.

On the following day I inserted my little finger, but with considerable difficulty and no little apprehension. On each succeeding day I was able to insert a larger finger and finally my thumb, which is of more than average size, all with much less force than was needed at first for my little finger. The constriction seemed to extend along the bowel for only a few millimeters. It was not spasmodic in character, for it remained each day of nearly, or quite, a caliber corresponding to the size of the last finger inserted.

The relief, both subjective and objective, was immediate and coextensive with the degree of treatment. The mother was instructed to insert her largest finger daily for a time and then less often as seemed indicated. This she did for some four or five months. There was never the slightest indication of a return of the trouble, and when I saw the infant again at 6 months of age, he was apparently a normal, well nourished baby. I last heard from him four years ago when he was 12 years old and weighed 95 pounds (43 Kg.). His mother then reported that he had not been troubled with constipation since his early treatment, and that he was normal except for nervousness and occasional attacks of epilepsy.

CASE 2.—Baby M. L., a breast-fed girl, aged 3½ weeks, birth weight 9 pounds, 9 ounces (4.5 Kg.), present weight 9 pounds, 2 ounces (4.2 Kg.), was brought to the outpatient department of the Children's Memorial Hospital, June 18, 1923, because of a "large abdomen." The mother had been a nurse and was a very intelligent woman. She stated that the baby had seemed normal to her at birth and had passed a usual amount of meconium. On the sixth day she noticed for the first time that the abdomen was very much distended. This distention had increased greatly in the last two weeks. The baby had vomited only twice since birth, but had always been troubled with obstinate constipation. The bowels moved only with a suppository, and then with great force. The movements had always been yellow and liquid. The mother had noticed a feeling of constriction, or resistance, every time she passed a suppository.

The following notes were made by the intern at the time of the first visit: "The child appears normal except for a very large, distended abdomen. Ascending, transverse and descending colon distinctly seen. Entire abdomen very tympanitic. Rectum constricted. Did not admit finger. Abdominal girth, 22 inches. The lower part of the abdomen blue. Child seems distressed. On insertion of a catheter, gas and fecal matter were passed and distention was somewhat relieved."

June 19 (the following day), the patient was brought to my clinic. The sausage shaped colon could be clearly outlined throughout its whole length, including the sigmoid. The thorax was very small and high, in marked contrast with the large abdomen. The skin of the abdomen was thin and pale. The intern inserted her little finger against a great deal of resistance. When the finger was withdrawn, gas was expelled with such force that fecal matter was carried several feet across the room. The index finger was next inserted, again with considerable difficulty. The constriction was about 1 to 3 cm. above the anal orifice.

June 20, the abdominal girth was 3 inches less, the skin was relaxed and pink, and the colon was distinctly seen. The small, index and middle fingers were inserted easily. The child had had two movements without suppositories that morning.

June 21, gas and feces were passed without suppositories and without force. The abdomen was soft but moderately distended, showing the colon plainly. The thumb was inserted easily.

June 22, the child passed a pasty stool for the first time. The thumb was easily inserted. The mother was instructed to insert her small and index fingers daily.

June 26, the abdominal girth was 14¼ inches—a decrease of 7¾ inches in eight days. The baby had gained 11 ounces (0.3 Kg.) in the past six days. The abdomen was now of normal size.

July 3, a finger was inserted easily. In the morning the baby passed a large formed stool. She was at this time receiving some artificial food.

The baby when last seen was 2½ months old, weighed 11 pounds, 8 ounces (5.2 Kg.), and seemed normal in every way.

CASE 3.—Baby L. F., a breast-fed girl, aged 3 weeks, was first seen at the Northwestern University Medical School Dispensary with Dr. Gerald Krost, Oct. 8, 1920. The birth weight was 5 pounds, 12 ounces (2.6 Kg.); the present weight 6 pounds, 8 ounces (3 Kg.). The outstanding symptoms had been vomiting since the day of birth, great abdominal distention, and excessive crying. The vomiting was never projectile; it occurred immediately after nursing and even water was returned. The abdomen had been greatly distended and red

since the first week of life. The bowel movements were said to have been normal at first, and then became dry, so that a senna preparation had been given daily for the past week. With this there were two movements a day. The grandmother stated that the baby had never passed gas as her babies had. It had cried almost constantly and slept neither day nor night.

The baby was evidently in great and constant distress. The abdomen was uniformly and enormously distended, tense and drumlike. The abdominal wall was stretched and thin; the skin was red and shiny, and the veins stood out prominently over the abdomen. There were no prominent individual intestinal coils and no marked visible peristalsis. The condition seemed to be one that would require surgery. However, because of the child that I had seen ten years before (case 1), Dr. Krost, at my suggestion, inserted his little finger into the rectum. Considerable pressure and time were necessary to overcome a tight, firm, circular constriction in the region of the sphincter, or probably just a little above it. With a scapsuds enema a large amount of feces and gas were passed; the abdomen became much softer, and the baby was greatly relieved. No other constrictions were found with a barium enema, nor with barium by mouth.

The constriction was dilated with the finger daily for ten days and once a week thereafter for two weeks. After four or five treatments there was no longer any feeling of resistance. There was apparently some contraction after each of the early dilations but never to the previous point. After the first treatment the baby passed a great deal of gas all night. It vomited a small amount that night and never again. After the third treatment the abdomen seemed quite normal in appearance and the incessant crying had stopped. The baby gained 2¼ pounds (1 Kg.) in the next twenty-five days and another 8 pounds (3.6 Kg.) in the succeeding four months. When last seen at 6 months of age the baby was apparently normal in every way, and a rectal examination no longer revealed any abnormality.

Case 4.—Baby S. K., a breast-fed boy, aged 3 months, was seen in private practice by Dr. Gerald Krost, to whom I am indebted for the following report and for the courtesy of permitting me to include it in the present series. The birth weight was 7 pounds 2 ounces (3.2 Kg.); at 3 months the infant weighed 10 pounds 10 ounces (4.7 Kg.). The baby had suffered from constipation from birth and had always cried a great deal, especially just before a bowel movement. With each movement he would strain for a long time and then pass a thin soft stool with a large amount of gas. He passed very little gas at other times. The bowels moved about once in from thirty-six to forty-eight hours. After each movement the baby would quiet down for about ten to twelve hours, and would then begin crying as before. He never vomited.

On examination the baby seemed normal except for a marked drumlike distention of the abdomen. No visible peristalsis was detected. On rectal examination, the little finger encountered a very firm, constricting band in the region of the sphincter, which dilated only slowly after considerable pressure. The entire little finger was finally admitted. When the finger was withdrawn, the baby expelled a soft breast milk stool, and a large amount of gas with an almost explosive sound.

The little finger and, later, the index finger, were inserted daily for a week. After the first insertion the baby passed gas more freely than it had since birth. After the second treatment there were one or two normal stools a day. The abdominal distention was gone, and the baby seemed normal in every way and remained so while under observation for several months.

Two other patients entered the Children's Memorial Hospital with apparently an identical condition, though the evidence is not quite so clear. Both were in an extreme state of marasmus, and both died after a short stay in the hospital. It is impossible to say how much the rectal condition contributed to the final outcome.

Case 5.—Baby R. S., aged 5 weeks, bottle fed, weighing 6 pounds, or 2.7 Kg. (birth weight unknown), was brought to the hospital for persistent, projectile vomiting, practically since birth. There was a further history of continuous crying and of constipation that was relieved only by a senna preparation and enemas. The abdomen was "tense and boardlike." Rectal examination revealed just inside the sphincter ani, and about 2 to 3 cm. from the anal orifice, "a tight ring with a sharp edge." The rectum was dilated with the finger from time to time for nearly two weeks. There was very little vomiting in the hospital, and a pyloric stenosis could easily be excluded. The baby lost steadily and died weighing 4 pounds 15 ounces (2.2 Kg.). Autopsy did not show evidence of pyloric stenosis, and no evident rectal stricture could any longer be found after death.

Case 6.—Baby X. R., a breast-fed boy, aged 2½ months, weighing 6 pounds (2.7 Kg.), was brought to the hospital, Aug. 10, 1922, because of a "swelling up of the stomach" since about 3 weeks old. So great was the distention that there was marked embarrassment of respiration. There was also a history of vomiting, constipation and a great loss in weight. The abdomen was said to be "swelled up all the time" unless relieved by enemas and castor oil, and the latter was becoming ineffectual. The baby was always dopy and lost his appetite when the abdomen was greatly distended. There was no fever, but he had vomited for five days. The following notes were made in the outpatient department: "The abdomen is markedly distended, is very shiny, and a large mass can be felt extending across the upper abdomen and down the left side. After passage of the little finger, and later of a catheter, about 6 ounces of foul, yellow-green, half-formed, fecal material was passed. After passage of feces and gas, the abdomen relaxed markedly. Diagnosis: Megacolon."

In the hospital, where the case was again diagnosed as megacolon, the following conditions were noted:

August 16, a large sausage shaped tumor mass was seen lying horizontally in the upper part of the abdomen and a similar mass lying vertically on the left side of the abdomen. Peristaltic waves were from above downward. A finger was inserted into the rectum through "a very tight sphincter," and its withdrawal was accompanied by a burst of gas and yellow stool. The abdomen was reduced considerably after this procedure.

August 18 there was much distention of the abdomen before the passage of the catheter. Much fecal matter and gas were always obtained.

Fluoroscopic examination showed a distended, sausage-shaped sigmoid; apparently a short, narrower, slowly filling part of the colon, and then a markedly distended descending and transverse colon. Whether there was a true colonic constriction, or an apparent narrowing due to pressure against the brim of the pelvis, is problematic. Such a constriction could not, however, explain the distention of the sigmoid, the great relaxation of the whole abdomen by the simple insertion of a catheter, and the very characteristic "burst of gas and feces" after the insertion of a finger. These can be accounted for only on the basis of an anorectal constriction. This patient was in the hospital during my vacation and I myself did not make an examination. Whether the constriction was due to "a very tight sphincter" as reported by the intern, who was unfamiliar with the type here reported, or due to that type itself, must remain undecided. In the earlier cases we too thought that we had "a tight sphincter" to deal with.

COMMENT

These cases apparently all belong in the same category. In all of them there was marked abdominal distention due to an overdistended colon, obstinate constipation and evidence of great distress, and most of the patients vomited. In some, coils of intestine and increased peristalsis could be seen, and in others not, probably depending on the thickness and tenseness of the abdominal wall and on the degree of hypertrophy of the intestinal wall. In all of them, with the possible exception of the last, there was apparently an identical anatomic condition; i. e., a sharp, short, firm, constricting ring just above the sphincter ani, of different caliber in different cases; in all offering decided resistance to the examining finger, but in all yielding, reluctantly, but safely; in all remaining dilated to a greater degree with

the insertion of each larger finger, and in all remaining dilated as long as the infants were under observation, to a functionally normal degree.

Superficially, these cases all clearly resemble an early Hirschsprung's disease. They must, however, definitely be excluded from that category if the term Hirschsprung's disease is to be used, not as synonymous with megacolon, but in its original, restricted sense of an idiopathic, congenital dilatation and hypertrophy of the colon, without demonstrable distal obstruction in the intestine. In these cases there was distention and hypertrophy of the colon, with, and because of, such demonstrable obstruction. In none of them was there that gigantic dilatation and spectacular accumulation of fecal matter that have been the joy of nearly all reporters of advanced cases of Hirschsprung's disease. They all occurred, however, in earliest infancy, and nearly all in breast-fed babies, who never have a firm stool. What the future condition would have been, if they had not been treated and had survived, can be visualized from the older like cases of David, in all of which there were large accumulations of impacted feces in the rectum and a colon large enough to be reported as megacolon.

It was our impression in the earlier cases that we had to deal with an overactive, or hypertrophied sphincter muscle, analogous to pylorospasm or to hypertrophic pyloric stenosis. Such cases have been reported by Bartle,[3] Fenwick [4] and Wilms.[5] We were set right in the matter by David. The constriction was commonly not at the sphincter, but about 1 to 3 cm. from the outside; it was shorter, sharper and firmer than a sphincter, and was nonelastic; above all, it remained of larger caliber after each greater dilation and shortly seemed to disappear entirely if once dilated to the normal size of the intestine, a fact which alone would exclude the sphincter in the pathogenesis.

The true explanation of these congenital anorectal strictures would seem to be found in an embryonic arrest of development. The hollow, descending mesenteron, or rectum, apparently fails to fuse completely with the ascending, tubular, epiblastic invagination, or proctodeum, which forms the anus. If to this is added a failure of the urogenital membrane to separate the genito-urinary tract from the rectum and anus, all of the etiologic factors have been mentioned that enter into the manifold anomalies that are so common in this region. In this condition there is then, apparently, a congenital anomaly identical in origin with all the other malformations in this region, but one of very restricted extent. As a result of the failure of these two hollow organs to fuse into one, there may be an imperforate membrane at the mucocutaneous junction of the rectum and anus, which may vary somewhat in location; or a membrane with a small opening in the center, the "iris diaphragm" type; or one with a larger, hymen-like opening with a circumferential shelf; or, finally, one that is semilunar, or sickle shaped. The obstructing membrane may be soft and pliable and composed of mucosa alone, or it may be firmer and contain also the submucosa. Tubular or cylindric constrictions of greater length have been reported in which either the mesenteron or the proctodeum fails to develop completely. In these the walls are said to be more rigid and to contain all of the layers of the bowel. Also, Houston's valves have been reported as a cause of obstruction. The cases in the present series would all seem to belong to the diaphragmatic type with openings of different sizes. None of them, however, were examined with a proctoscope.

Nearly all the cases of this type that have been reported have been in older persons. It is hard to understand how so serious a condition can go on for years without either a correct diagnosis and appropriate therapeutic relief, on the one hand, or death, on the other. Thus, Reynier,[6] in 1878, reported the histories of seven patients varying from 15 to 32 years of age with iris diaphragm and valvular constrictions that were apparently more fibrous than those of infancy, presumably because of longer duration. Reclus,[7] in 1913, reported six cases in adults from 30 to 52 years of age, all with a diaphragmatic constriction about 3 cm. above the anal orifice. He considers all diaphragmatic constrictions at that exact location as, *ipso facto*, congenital in origin. The patients reported by David, as has been stated, were 16 months, 4 years and 7 years of age, respectively.

One of the most interesting contributions to this subject, both clinically and historically, is that of another Frenchman, Bouisson.[8] In an inaugural thesis written in 1851 in competition for a chair of clinical surgery in the medical school in Paris, he covered the whole subject exhaustively, and cited interesting cases of a much earlier date. Thus, Serand [9] reported a typical case of the type that I am now considering in which he operated successfully in 1814. Saviard [9] reported on a patient that he saw in 1693 with a bulging membranous closure of the rectum through which the meconium could be seen, which he opened and cured with a bistoury. Still earlier, Scultet,[9] in 1640, recorded the history of an infant with "an anus not sufficiently perforated." The parents refusing to call in a surgeon, Scultet successfully dilated the "very tight stricture" with pencils prepared from gentian roots, which were "left until, swollen, they dilated everything sufficiently." Bouisson also cited the case reported by Petit [9] of an infant that had not passed a stool for two days and had cried incessantly, and in whom the abdomen was greatly distended. He found a complete membranous obstruction just above the sphincter. This he lanced and then dilated the opening with his fingers. This gave permanent relief, though the child died later of some intercurrent trouble. Bouisson also described two specimens of congenital stricture of the rectum due to Houston's valves that he saw in the medical museum in Montpelier.

With the exception of Scultet's case in which surgery was refused, I do not know of any case reported in the literature that was not treated surgically. The three cases in children reported by David which presented, respectively, an iris diaphragm type with very small opening, a circular stricture of the rectum which barely admitted the tip of the index finger about 5 cm. above the anal orifice, and a sickle shaped type occluding two thirds of the rectum about 3 cm. from the outside, were all treated by multiple incisions and dilation. The second of these was peculiarly instructive in that a surgeon of the very first rank, evidently interpreting the case as one of true Hirschprung's disease, had previously resected 7 or 8 inches of sigmoid without relief and with a resultant fecal fistula at the site of the

3. Bartle, H. J.: Megacolon: A Résumé of the Literature and Report of a Case; Laminectomy Proposed as a Form of Treatment, Am. J. M. Sc. 171: 67-81 (Jan.) 1923.
4. Fenwick: Hypertrophy and Dilatation of the Colon in Infancy, Brit. M. J. 1900, p. 564.
5. Wilms: Demonstration eines Falles von Hirschsprungscher Krankheit, München med. Wchnschr., 1905, p. 2061.
6. Reynier (quoted from David).
7. Reclus: Presse méd., Jan. 11, 1913, p. 29.
8. Bouisson: Thèse sur la question suivante: Des vices de conformation de l'anus et du rectum, 1851.
9. Quoted from Bouisson.

abdominal wound. Proctoscopy was then done and the child was cured promptly by small multiple incisions followed by dilation with the finger and rectal dilators.

Perhaps we have "dwelt in a fool's paradise" in not having these patients examined with the proctoscope and treated proctologically and surgically. I have no quarrel with any one who takes this view. Perhaps we were dealing with exceptions and coincidences. There are doubtless cases that require surgery, or are best treated surgically. And yet from this series it would seem that many of these constrictions are of such a nature that they can be safely dilated with the finger without the use of dangerous force; that, once sufficiently dilated, they remain so, and that one is justified in trying the simpler procedure first.

SUMMARY

In six cases of infantile congenital anorectal stricture, apparently all of the simple diaphragmatic type, in which abdominal (colonic) distention was the outstanding symptom, the obstruction was promptly relieved by finger dilation.[10]

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ABSTRACT OF DISCUSSION

DR. J. P. CROZER GRIFFITH, Philadelphia: I have not seen, or at least not recognized, such cases as Dr. Brennemann has described. I have, however, long been interested in the subject of megacolon. Dr. Brennemann's contribution is of great value because it teaches us to make a thorough search for some possible constriction, some possible cause for a megacolon which we might otherwise have called idiopathic. A sharp distinction is to be made between the idiopathic dilatation, which often goes by Hirschsprung's name, although not first described by him, and the numerous secondary dilatations represented, for instance, by such cases as Dr. Brennemann has described. The distinction is often difficult to make clinically. I recall one case in the hospital of the University of Pennsylvania which was supposed to be idiopathic dilatation of the colon. An operation was done, and a stenosis was found high in the rectum. Recovery followed relief of this stenosis. To call such a case Hirschsprung's disease would be a mistake. One might say that it is a matter of no real moment to make the distinction between the primary and the secondary cases of megacolon. This would be a grave error from the point of view of prognosis and treatment. Obstruction is not the cause of Hirschsprung's disease. One may, it is true, sometimes find kinks in the colon in this disorder, but these kinks are the result of the disease, not the cause. There is, therefore, a differentiation to be made between the idiopathic and the secondary cases of megacolon, but it is often difficult to make it. Its importance, however, is very great; for the idiopathic cases offer an unfavorable prognosis, while the secondary cases of dilatation of the colon are curable if one can find the cause. Here is a case in point: I was called in to see in consultation, a number of years ago, a boy, aged 4 years, with very large abdomen and undoubted dilatation of the colon. The physician desired my support in his opinion that the case was one of Hirschsprung's disease and that a resection of the colon should be done. It so happened that before the child left Philadelphia I had treated him for prolonged chronic intestinal indigestion. It left him with a chronic dilatation of the abdomen and colon. Owing to this previous experience with the case, I was certain that the condition was one of intestinal atony, and that he would recover without surgical intervention. The boy is now grown up and perfectly well. What would have happened to him if the colon had been resected, I do not know, but I know what his chances would have been. It is true that many patients recover after removal of the colon, but if one refers to the statistics, one will find that Hirschsprung's disease is usually a serious affair with a high mortality, whether operation is performed or not. The necessity of making careful search for possible removable causes of megacolon, as Dr. Brennemann has done, becomes, then, increasingly evident.

DR. W. A. MULHERIN, Augusta, Ga.: I saw a baby, aged 10 days, that had never had a normal stool, was breast fed, of normal weight and had only slight stains of meconium on the diaper. The colon was distended and there was a rectal structure about 1 inch or 1½ inches from the anus. Each day the tip of the little finger was dipped into petrolatum and inserted into the rectum, and the result was excellent. Liquid petrolatum was given by mouth. This child made an uneventful recovery. A second case is also of interest. This child was seen at the age of 2 or 3 weeks, and the history was similar to that of the first case. The same signs were present, and there was a stricture in the rectum about an inch above the anus. The baby did well with liquid petrolatum by mouth and digital dilation until it was 3 months of age. Then the mother grew negligent and allowed fecal matter to accumulate in the lower bowel. When I saw the child it had passed bright red blood. Digital examination left blood on the finger. The child was vomiting and had pain. The abdomen was distended, but there was no fever. When the bowel was dilated slightly with the finger, oil inserted and then a saline enema given, the fecal matter came away freely, and in two or three days the symptoms disappeared.

10. Since writing the foregoing I have seen another case exactly like these, with Dr. J. H. Wallace, except that there was no evidence of megacolon or marked abdominal distention in spite of the fact that the constriction was one of the tightest in the series.

A STUDY OF TWO HUNDRED AND TWO CASES OF CONGENITAL SYPHILIS*

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I have had 202 cases of congenital syphilis under my care, and in making a more or less intensive study of these patients collectively as well as individually I have noted a few interesting details which I hope may be of benefit to physicians in their continued attempt to overcome the infection.

For my records I endeavored to secure an accurate parental history with especial attention to the duration of the mother's infection, the amount and character of the treatment she had received, the number and order of pregnancies and the outcome of each, as well as the notation of symptoms in the syphilitic infant, and the tabulation of the character, frequency and diagnostic value of the various stigmas found in the late syphilitic patient and their influence on prognosis, serologic observations and the luetin test.

INCIDENCE

In 80 per cent of the mothers it was impossible to determine the exact duration of infection owing to the obscurity of the primary lesion and the absence or scantiness of secondary lesions. In cases in which I was unable to learn the date of the initial lesion, I tried to trace it from the time of marriage or from the duration of the husband's infection. Tabulating the cases in which sufficiently accurate information could be obtained, I found that the period of infection in the mother, prior to the birth of the syphilitic child, varied from five months to fourteen years; 104 had been infected less than five years, and sixty-four for a longer time. In the remaining cases it was impossible to arrive at even an approximate date of infection. It

* Read before the Section on Dermatology and Syphilology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 19, 1927.

was interesting to note that in 158 cases the mother had not received any treatment prior to or during pregnancy; twenty-six mothers were treated before pregnancy, but only twenty during pregnancy and these inadequately. I found that sixty of these cases of congenital syphilis represented the first pregnancy, forty-one the second and thirty-five the third, the number gradually decreasing thereafter to the thirteenth. I believe it is generally thought that first pregnancies in syphilitic mothers end in abortions, miscarriages or diseased children who die in early infancy (Deday's law).

Fraser and Impey [1] also found exceptions to this law not unusual. Of the 181 mothers, 103 had had abortions, miscarriages or stillbirths, either preceding or following the birth of the syphilitic child. I studied five families in which one or two serologically and clinically healthy children were born of syphilitic parents; these were followed by a syphilitic child, then one or more heatlhy children, the parents having at no time received antisyphilitic treatment. Another interesting observation was in four sets of twins occurring in different families; one twin of each was syphilitic and the other did not have stigmas of syphilis and gave persistently negative Wassermann reactions. The ages of these twins varied from 7 months to 17 years.

Dennie [2] reports a study of six sets of twins; in five cases both twins were syphilitic and in the sixth, a pair of identical twins, one had escaped infection and the other had marked stigmas and gave positive serologic reactions.

Otto Haslund [3] records a similar case and in reviewing the literature was able to find about twenty such cases previously described. I had three congenitally syphilitic mothers each with from one to three healthy children; the fathers were normal. There were also two congenitally syphilitic fathers with normal wives and children.

My series of congenital syphilitic patients comprised ninety-two males and 108 females, their ages varying from 3 weeks to 44 years. For convenience they were divided into age groups: forty-one were under 5 years; forty-four between 5 and 10; fifty-eight between 10 and 15; thirty-six between 15 and 20, and twenty over 20 years. The average age at which symptoms developed for which the patient sought medical attention was between 10 and 15, although in a complete history I found that milder symptoms had often been present earlier in life. I frequently saw patients without symptoms, their infection having been discovered in an examination occasioned by a detection of syphilis in some other member of the family. This was true in sixty-five cases of this series, all showing 4 plus Wassermann reactions with very few stigmas of the disease. Contrary to the general belief, the majority of these patients were mentally normal, only 17 per cent having any mental aberration whatever, and some being unusually intelligent. Stokes [4] states that 12 per cent of congenital syphilitic persons are mentally above the average for their years.

MANIFESTATIONS OF THE DISEASE

I have observed that the cutaneous eruptions of the congenital syphilitic patient are almost identical with those of acquired secondary syphilis in the adult, but are often not recognized owing to the scantiness of the rash. There was either the presence or a history of secondary lesions, snuffles, emaciation, epiphysitis or meningitis between the ages of 3 weeks and 6 months in fifty-one of my cases.

Interstitial keratitis was the most frequent symptom which caused the person with late congenital syphilis to seek medical advice, being present in seventy cases. These observations agree with those of Hazen in his treatise on syphilis that it is the most common complaint between the ages of 5 and 15. Stokes finds that 52 per cent out of 202 patients applied for medical attention because of interstitial keratitis. Arthritis was the second most frequent cause, being present in fifteen cases. Gummatous ulcers were noted in fourteen; retarded mentality in ten, and various other complaints such as periostitis in three, deafness in three, hydrocephalus in three, pseudoparalysis in two, and one each of optic atrophy, stomach trouble, alopecia areata, spinal curvature, dwarfism and chronic sinusitis.

PATHOLOGIC CHANGES REVEALED BY EXAMINATION

Complete physical examinations showed that the most usual defects were dental deformities; sixty-four patients had wedge shaped anterior incisors; forty-five presented tubercles of Carabelli; thirty-three had mulberry molars; twenty-five delayed dentition, and twenty-one Hutchinson teeth. Next in order of frequency was a high palate arch, which was found in seventy-four cases; thin, irregular hair in forty-one cases; asymmetry of the face with prominent bosses of the head in twenty-five; changes in the pupillary and deep reflexes in nineteen; saber shins in fifteen; deafness in eight; malocclusion of the teeth in five; saddle nose in four, and hydrocephalus in four. These observations correspond approximately with those of Jeans.[5]

Some observers note a much higher percentage of nervous system involvement than we have recorded. Veeder,[6] in reviewing 100 cases of late congenital syphilis, classified forty-seven as showing lesions of the central nervous system. Dennie and Dwyer [7] find fifty-nine cases presenting some disturbance of the central nervous system. These opinions were, presumably, based on clinical and physical observations rather than on serologic tests, no record being found of the spinal fluid in many of these cases.

I have grouped as neurosyphilitic patients only those in whom the serologic tests of the spinal fluid are positive, in addition to physical signs, feeling that in the cases presenting only retarded mentality, epilepsy or headaches, too many factors other than syphilitic infection might be the cause of the symptoms. An examination of the spinal fluid showed it to be negative in 152 cases and positive in sixteen. The males showed a slightly larger incidence of neurosyphilis, 11.2 per cent giving positive spinal fluid reactions, while the females gave only 10 per cent. In this series there were six other cases, each showing positive Wassermann reactions of the blood, clinical evidences of tabes, Argyll Robertson pupils and absence of deep reflexes, but negative Wassermann reactions of the spinal fluid.

The Wassermann reaction of the blood serum was not always as reliable in the infants as it was in older children with congenital syphilis, being not infrequently negative in the first few weeks and then becoming

1. Fraser, A. R., and Impey, R. L.: Etiology and Management of Antenatal Syphilis, Am. J. Syph. **9**: 274 (April) 1925.
2. Dennie, C. C.: Heredosyphilitic Twins, M. Clin. N. Amer. **7**: 1219 (Jan.) 1924.
3. Haslund, Otto: Sur la participation inégale des jumeaux dans la syphilis congénital, Ann. de dermat. et syph. **5**: 321 (June) 1924.
4. Stokes, J. H.: Modern Clinical Syphilology, Philadelphia, W. B. Saunders Company, 1926, p. 1052.
5. Jeans, P. C.: Reaction in the New-Born and Growing Child, Am. J. Syph. **4**: 473 (July) 1920.
6. Veeder, B. S.: Hereditary Syphilis in the Light of Recent Clinical Studies, Am. J. M. Sc. **152**: 522 (Oct.) 1916.
7. Dennie, C. C., and Dwyer, H. L.: The Results of Treatment of Four Hundred Cases of Congenital Syphilis, Tr. Sect. Dis. Child., A. M. A. 1924, p. 243.

strongly positive. An example was that of a child born in City Hospital of an untreated syphilitic mother, the child's Wassermann reaction being repeatedly negative for the first four months, and later becoming strongly positive, but only after a typical syphilitic papular eruption had been present for six weeks.

While I have not known of any instance in which a Wassermann reaction repeatedly negative for six months has become positive, I think it wise in all suspected cases to repeat the Wassermann test at intervals for several years. Fordyce and Rosen [8] find that the results of the Wassermann tests taken at the time of delivery are not trustworthy, and advise tests every three months until the child is 2 years old, and semiannually after that for an indefinite period. In my cases of untreated congenital syphilis, the Wassermann reaction was strongly positive in 190 cases, moderately so in eight and negative in two patients, one of the latter having optic atrophy, and the other being a mentally defective girl of 15, born of syphilitic parents, with Hutchinson teeth and other stigmas of congenital syphilis.

In the absence of positive serologic data it is frequently difficult to make a diagnosis of congenital syphilis. However, I believe that the Hutchinson triad (interstitial keratitis, deafness and notched, wedge shaped anterior upper incisors) is pathognomonic of congenital syphilis. I have never seen Hutchinson teeth in other than persons with congenital syphilis or in the offspring of syphilitic parents, and I believe that syphilitic interstitial keratitis is so rarely seen in acquired syphilis that it can be considered evidence of congenital syphilis. I have observed Carabelli tubercles more often in nonsyphilitic individuals than I have in those with congenital syphilis. The same observation has been made by Locapere and Laurent [9] and by Stokes.[10] The high palate arch, scaphoid scapula, saber shins, irregular hair line and asymmetry of face may also be found in other than syphilitic children.

TREATMENT

My plan of treatment is one of continuous medication and does not vary in any way from that of the adult, with the exception that when it is impossible to give intravenous injections the drug is administered intramuscularly. I insist on the former mode of treatment when possible because less local discomfort results, and particularly because the method enables me to give the drug more frequently and in conjunction with mercurial injections.

In infants up to 1 year of age, I vary the dosage of neoarsphenamine from 0.1 to 0.25 Gm.; from 1 to 5 years old, 0.15 to 0.3 Gm., and from 5 to 10 years old, 0.2 to 0.45 Gm. The first four injections are given twice a week, after which the intervals are lengthened to seven days. Each course consists of ten injections of neoarsphenamine and fifteen of mercuric chloride, the latter drug being continued after the termination of the arsphenamine injections until the total number has been given. The injection of arsphenamine is then continued, this time without the mercury, which is resumed only after the completion of the course of arsphenamine.

Potassium iodide is given at intervals during the mercury injections. This plan of treatment is continued for three or four courses of arsphenamine and mercury or for from one to one and a half years. When an interruption of the injections is necessary, barring physical ailment, the patient is put on mixed treatment. Monthly routine urine analyses and occasionally blood counts are made. I insist on nourishing food, fresh air and the avoidance of undue fatigue.

I have been unsuccessful in arresting neurosyphilis in these cases with intravenous and intramuscular treatments alone; consequently, I have been giving intraspinal injections of Swift-Ellis serum, often with pleasing clinical results. This method is carried out in the usual way, except that the blood is taken from an adult receiving not more than 0.3 Gm. of neoarsphenamine intravenously, from one-half to one hour after the intravenous injection. I have not used more than 10 cc. of serum intraspinally. The children tolerate the treatment well, having little or no reaction. While the Wassermann reaction of the spinal fluid in cases of congenital syphilis has been more difficult or impossible to influence, the clinical symptoms have disappeared just as quickly as they have in patients who have acquired the infection.

REPORT OF CASE

J. H., a girl, aged 3 years, 7 months, seen, Sept. 10, 1925, at the age of 22 months, had been born at full term after a normal delivery, and was apparently healthy except for difficulty in feeding up to 5 months of age, when enlargement of the head was noticed and diagnosed as hydrocephalus. Enlargement of the head continued, and she did not begin to walk until 16 months of age, though the intelligence was normal. September 7, eight days before admission to the service of Dr. Frank Elmer Johnson at the Babies' Hospital, the patient developed paralysis of the left side of the face and left arm, followed in five days by paralysis of the left leg and inability to speak. Examination showed large, unequal, irregular and sluggish pupils, flaccid paralysis of the left side of the face and left upper and lower extremities, hyperactivity of all deep reflexes, especially those on the left side, with an ankle clonus on the left. The heart, liver and spleen were normal. The Wassermann reaction of the blood was 4 plus, and of the spinal fluid 4 plus to 0.5 cc., with 320 cells, 4 plus globulin and a luetic curve.

Reactions of Cerebrospinal Fluid

Date	Cells	Globulin	Wassermann Reaction	Colloidal Gold Test	Serum
10/13/25	320	4+	4+ 0.2 cc.	5554321100	4+
12/15/25	45	4+	4+ 0.5 cc.	5544321000	4+
1/ 9/26	16	1+	4+ 1.0 cc.	1133300000	...
4/ 9/26	6	–	2+ 2.0 cc.	1132310000	4+
11/19/26	18	3+	4+ 0.5 cc.	4332110000	4+
12/ 3/26	12	1+	4+ 0.5 cc.	3231110000	...
12/18/26	7	1+	4+ 1.0 cc.	1232211000	4+
3/15/27	5	1+	4+ 1.0 cc.	.....	...
4/ 8/27	6	1+	4+ 2.0 cc.	.....	...
4/29/27	4	1+	4+ 2.0 cc.	1121110000	4+

Total treatment, fifty-one injections of neoarsphenamine; forty-five injections of mercuric chloride; mercury inunctions and potassium iodide.

Treatment has been continuous. From September, 1925, to date, the patient has had fifty-one intravenous injections of neoarsphenamine and forty-five intramuscular injections of mercury alternated with rest periods, when she took potassium iodide and received mercury inunctions.

Within the first two weeks there was marked clinical improvement under treatment. The paralysis gradually cleared up so that she was able to walk, at first with slight weakness on the left side, but this practically disappeared in a year. She has developed normally, is bright, healthy and cheerful, and does not present abnormalities except enlargement of the head. The blood Wassermann reaction is still 4 plus, but the spinal fluid, from being 4 plus to 0.5 cc. with 320 cells and 4 plus globulin, has become 4 plus to 2 cc. with 6 cells and a very faint trace of globulin, as shown in the accompanying table.

8. Fordyce, J. A., and Rosen, Isadore: Results of Treatment of Congenital Syphilis, Arch. Dermat. & Syph. 9: 355 (March) 1924.
9. Locapere and Laurent: Paris méd. 8: 422 (Nov. 23) 1918.
10. Stokes: Modern Clinical Syphilology, p. 1036.

COMMENT

I have observed that the more recent the infection in the mother the more certain the offspring was to be syphilitic and the more virulent the infection. Out of 168 cases in which the date of the mothers' infection could be learned, 104 had been born less than five years after her initial lesion. Furthermore, the earlier the symptoms appeared in the infant the worse the prognosis; especially was this true in the cases of meningitis and nephritis occurring in the first few months of life, these having been almost invariably fatal.

I was able to study fourteen cases of nephritis in patients with congenital syphilis, not included in the 200 just reviewed, who were admitted to the service of Dr. Herbert Wilcox at the Babies' Hospital with strongly positive Wassermann reactions and a clinical diagnosis of nephritis. All had edema, and the urine analyses showed marked traces of albumin, with a few to a moderate number of hyaline and granular casts. Chemical analysis showed for the most part to be normal; occasionally there was slight nitrogen retention. All patients were treated with arsphenamine and mercury, receiving from two to four injections; but in spite of treatment they invariably died from ten days to four weeks after admission, usually with some complicating intercurrent conditions such as pneumonia or an intestinal upset. None of the patients had symptoms of uremia. In each instance an autopsy was performed by Dr. Martha Wollstein of the Babies' Hospital, and the observations reported as marked syphilitic nephritis, demonstrable both macroscopically and microscopically, with a diffuse and focal infiltration of plasma and round cells in and around the glomeruli and blood vessels and a panarteritis. Clinically this is in marked contrast to the usual picture in acquired syphilitic nephritis, in which the urine analysis becomes negative and the symptoms disappear almost miraculously following the injection of arsphenamine.

A typical case was that of a male infant, aged 3 months, admitted to the hospital in March, 1927, with edema of the extremities and face of ten days' duration, a 4 plus Wassermann reaction, a heavy trace of albumin in the urine, and a few hyaline and granular casts. Chemical analysis of the blood showed a slight retention of nitrogen. Four intramuscular injections of from 0.1 to 0.2 Gm. of neoarsphenamine at five day intervals, and mercurial inunctions were given, in spite of which the child died eighteen days after admission.

Campos [11] reports a microscopic examination done in sixty-nine cases of congenital syphilis including the still-born and those dying in early infancy, and found marked and charatceristic pathologic evidences of syphilis present in all cases, classified as pronounced changes in forty-three, conspicuous changes in eighteen and slight changes in eight. Stokes [12] states that in his opinion parenchymatous nephritis is a rarity. He quotes Weld as having reported finding nephritis in 20 per cent of 396 cases.

Syphilitic meningitis in infants is often difficult to distinguish from other types of meningeal infection, especially the tuberculous. Three of my four cases were admitted to the service of Dr. Herbert Wilcox at the Babies' Hospital with a provisional diagnosis of tuberculous meningitis.

A typical case was that of a boy, aged 7 months, admitted to the Babies' Hospital in 1925 with symptoms of stupor, rigidity of the neck and spine, and a temperature of from 101 to 102.5 F. of one week's duration. The child lay rigid with retracted head, stiff neck, a marked Kernig sign, unequal, irreguiar and sluggish pupils, marked hyperactive reflexes, a positive Babinski reflex, ankle clonus, and a swollen, painful right knee. The latter condition caused the examining physician to suspect syphilis. The cerebrospinal fluid showed 1,580 cells, 4 plus globulin and a 4 plus Wassermann reaction with 0.2 cc. Treatment consisted of two intraspinal injections with the Swift-Ellis method; four intravenous injections of from 0.15 to 0.25 Gm. of neoarsphenamine, and three injections of one-fourth grain (16 mg.) of mercuric chloride at five day intervals. The child died two and one-half weeks after admission, and the autopsy performed by Dr. Martha Wollstein of the Babies' Hospital showed evidences of marked syphilitic infection of the meninges without macroscopic or microscopic involvement of the brain.

In the three other similar cases autopsies were performed in two with analogous observations. Damas Rodrigo [13] described fourteen cases in which there were 65 per cent of deaths and only one complete cure. The same author quotes Dr. Leredde of Paris as saying that 75 per cent of the deaths of syphilitic children under 5 years of age are due to meningitis.

SUMMARY

1. In a study of 202 cases of congenital syphilis representing 181 mothers, it was found that the more recent the infection in the mother the more frequently the children were affected and the severer the type of infection.
2. Only 23 per cent of the mothers had received treatment before or during pregnancy.
3. The greater number of these cases represented the first pregnancy.
4. The average age at which symptoms developed was between the tenth and fifteenth years.
5. Ninety-one per cent of the patients were normal mentally.
6. Interstitial keratitis was the most frequent symptom occurring in 35 per cent of the cases.
7. Dental defects were the most common physical sign.
8. The Wassermann reaction and organic luetin tests were strongly to moderately positive in all except two cases.
9. Spinal fluid tests were positive in 10.5 per cent.
10. The plan of treatment was continuous.
11. There were fourteen cases of syphilitic nephritis. All were fatal and all were studied at autopsy.
12. There were four cases of meningitis, all of which were fatal. Three were examined at autopsy.

CONCLUSIONS

Generally speaking, the sooner after birth the child receives antisyphilitic treatment the fewer and less pronounced the late stigmas. If treatment is started during the first year of life, the child usually develops normally with little or no evidence of syphilis. As a rule, the older the child when treatment is begun, the more resistant the disease. It has been especially difficult to obtain a negative Wassermann reaction in those suffering from interstitial keratitis, even after prolonged treatment. Only six out of my total of seventy patients have become serologically negative, and these after from four to six years of almost continuous treatment with arsphenamine, mercury, iodide and bismuth. While the symptoms usually clear up and remain clear as long as the patient is under treatment, they are apt to recur when treatment is discontinued. One of my patients, a man, aged 44, has been receiving treatment at intervals

11. De Souza Campos, Ernest: Pathologic Changes in the Kidney in Congenital Syphilis, Bull. Johns Hopkins Hosp. 34: 253 (Aug.) 1923.
12. Stokes: Modern Clinical Syphilology, p. 1020.
13. Damas, Rodrigo: Arch. españ. de pediat. 9: 129 (March) 1925.

for more than fifteen years, and although he has not had a single clean negative Wassermann reaction he has not had any recurrence of interstitial keratitis. During this time he has had about seventy-five injections of arsphenamine, 150 of mercury, thirty-five of bismuth, and mixed treatments at intervals.

Usually when treatment was begun in early infancy, the Wassermann reaction became negative after about four courses of arsphenamine and mercury and remained so. A relapse to a positive Wassermann reaction after the serum has once become negative was rare, having occurred in only four cases of the series.

Although the symptoms of those suffering from neurosyphilis have either become less severe or have entirely disappeared under treatment, I have not been able in any instance to obtain a negative spinal fluid. Meningitis has been fatal in all cases.

Congenital syphilis of the kidney was diagnosed during life in fourteen cases, and in each instance was confirmed by autopsy.

Not including the four patients who had a relapse to a positive Wassermann reaction, I have obtained a negative result in 29 per cent of the cases.

20 East Fifty-Third Street.

ABSTRACT OF DISCUSSION

DR. UDO J. WILE, Ann Arbor, Mich.: It is quite evident, from what Dr. Cannon has said, that the prognosis of congenital syphilis is very different from the prognosis of acquired syphilis. I would separate definitely from cases of congenital syphilis those cases occurring in children who are born apparently well and who develop the lesion types which we usually associate with the acquired disease, that is, open syphilids of the secondary character. My own feeling about these children is that, barring the risk of infant mortality, they have about the same relative prognosis as the person with acquired syphilis. However, with those children who are definitely syphilitic in utero, and it is just possible that in those I have mentioned the syphilis is in the new-born, and acquired at that time, it is quite probable that a much larger majority of those which Dr. Cannon speaks of as developing the defect fifteen years or so after birth have the disease "bred in the bone." They may have these defects which may never manifest themselves by actual lesions, but they have the definite stigmas. In those cases we have no right to expect the same sort of therapeutic result that we can obtain in the acquired disease. A disease of intra-uterine origin has been a part of the individual from the time he drew his first breath of life. To be sure, many of these children can be protected against their heritage by intensive treatment. Each year that they stay well and occupy a useful field in life is additional evidence, not that they are cured, but that they are protected. The answer to the question Can the individual get well? will be found in the answer to the question of the "capriciousness" of syphilitic infection. Why is it that one infected individual develops after twenty years something that is relatively easy to cure, while a more unfortunate individual with the same background of disease and treatment develops an infinitely small lesion in the coronary artery and succumbs to it? To the same degree this capriciousness exists in congenital syphilis. Some of these children go through life without even the discovery of the positive Wassermann reaction, and no stigmas whatever. Still others, in whom some measure of protection has been attained, will be badly stigmatized from the outset. The question of the prognosis of congenital syphilis will depend, therefore, largely on the consideration of the individual case.

DR. J. GARDNER HOPKINS, New York: Dr. Cannon was wise in presenting his figures and observations, and in not committing himself too definitely as to prognosis. Some observations struck me as being rather significant. One was the bad prognosis in congenital syphilitic nephritis and meningitis. In such cases, destruction evidently has advanced beyond a point at which halting the infection can save life. In other cases, the inhibition of development of the organs has been so great that spirocheticidal remedies fail. Studies such as this one will enable us to distinguish cases in which something more is needed than destruction of the spirochetes. On the other hand, the prognosis seems favorable in uncomplicated early cases, and I sometimes think we make a mistake in speaking of this disease as "congenital syphilis" as though it were some strange entity rather than a syphilis of infants and children. If we remember the regularity of success attending the treatment of antenatal syphilis, we will conclude that it is as easy to cure an early, congenital infection as it is an acquired one. The treatment of children with congenital syphilis soon after birth also, barring those who are in very bad condition before treatment is begun, gives results which compare well with those in secondary acquired syphilis. So far as I can see, the prognosis does not differ greatly in congenital cases from that in acquired syphilis in the same stage.

DR. A. W. NELSON, Cincinnati: I do not know what the general conception is among syphilologists, but I have spoken to dentists and most of them disregard the symptom of Hutchinson's teeth entirely. Teeth similar to the Hutchinson variety often develop in children who have no stigma of syphilis whatever.

DR. A. B. CANNON, New York: The real Hutchinson tooth is a wedge shaped upper incisor which is notched. Another tooth is described which is wedge shaped, but without the notch. I believe that the Hutchinson tooth is pathognomonic of syphilis.

OBSERVATIONS IN THE UNDERWEIGHT CLINICS IN MASSACHUSETTS*

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The Massachusetts Department of Public Health is just completing the third year of its ten-year program. The plan, as outlined in the beginning, proposed the examination of the following groups of school children:

Children 10 per cent or more underweight for height.

Contacts: Those known to be exposed to human tuberculosis in the homes.

Specials: Those not in either of the foregoing classes, but who were known to be in poor health.

The primary purpose of this work was to find the children who showed some evidence of tuberculous disease. Knowing that children with the juvenile type of tuberculosis responded well to treatment, it was felt that if they could be discovered and given proper care at the right time many cases of the adult type of pulmonary tuberculosis would be prevented in later years.

During the first year about 10,000 children were examined; during the second year, 20,000, and during the third year, 20,000. Therefore, a total of about 50,000 children will have been examined at the end of this school year.

It is proposed to continue this work for a ten-year period. Besides finding the cases of tuberculosis, the examining physician notes other defects. In the communities, all the activities grouped under what is called child hygiene have been actively stimulated by these clinics.

The examinations are held only after an official request is made by the local board of health and school

* From the Massachusetts Department of Health.

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department, and agreements are made by the local health authorities to carry out the very necessary follow-up work for the children who are found to need attention.

EXAMINATION

The children were first stripped to the waist, and a cape was thrown over their shoulders while they were waiting. They were then weighed and measured, and the temperature was taken. The physician examined the teeth and tonsils, looked for evidence of adenoids, goiter, enlarged cervical glands and heart murmurs, and then examined the lungs by auscultation and percussion. The observations were recorded on the clinic record sheet. From the physical examination, the physician noted whether, in his opinion, the child's condition was suspicious or normal. No more definite diagnosis as to tuberculosis was made by him. The Pirquet tuberculin test was then done, full strength, old tuberculin, obtained from the Saranac Lake Laboratory, being used. On the third to the fifth day, the children were again seen by one of the physicians, and the results of the test were recorded. A list was made of the reactors, and as soon as possible thereafter, a roentgenogram of the chest was taken.

CLASSIFICATION

On the day of the examination, the parents were given a report as to any defects that were found. Later, those children who reacted to the tuberculin test were roentgenographed. The latter group was then classified as to the presence or absence of tuberculosis, and a report was sent to the parents. The children were grouped in the following classes: Those with pulmonary tuberculosis; those with hilum tuberculosis; the suspects, and normal children.

The pulmonary group includes those who were found to have the adult type of pulmonary tuberculosis, as shown by physical examination and the roentgen ray.

The diagnosis of hilum tuberculosis was based on the presence of a postitive tuberculin test, and roentgen-ray evidence of calcified, tracheobronchial glands with or without a well defined primary lesion in the lung. These primary nodules may be single or multiple and may be found in any part of the lung parenchyma. They appear as calcified or partially calcified nodules, varying in size from 2 mm. to several millimeters in diameter. They usually have well defined borders and vary much in density, according to the amount of calcium they contain.

The presence or absence of physical signs and symptoms are given but little weight in the making of this diagnosis. A physician cannot determine the presence of these hilum glands, or primary lesions, by physical examination. A roentgenogram is necessary to demonstrate them, and the person who interprets the film must have had experience with chest work in children.

We have followed Dr. Eugene Opie in his conclusion that tracheobronchial lymph nodes do not appear as distinct masses in a roentgen-ray film at the hilum of the lung unless there is some deposit of calcium in them. Furthermore, he states that calcification takes place in the lymph nodes or primary lesions only in the presence of tubercle. With this as a standard, we have felt that we were on safe ground in making the diagnosis of hilum tuberculosis in these cases.

The term hilum tuberculosis has been adopted by the National Tuberculosis Association and the American Sanatorium Association, and is included in the last edition of Diagnostic Standards. It is synonymous with what is sometimes called the juvenile type of tuberculosis or tracheobronchial tuberculosis.

In an adult we can base our estimate of activity or latency on symptoms. With children, however, this is not a safe guide, because the infection is comparatively recent in any case, and sufficient time has not elapsed, since the onset of the disease, to permit it to become healed and the bacilli impotent.

Furthermore, the symptoms of hilum tuberculosis are, at best, vague and often absent. It is well, therefore, to consider that in children any tuberculosis of the tracheobronchial glands or primary nodules in the lung may be active, and not to be put off one's guard by the good appearance of a child who may be well nourished and without symptoms. Such a child may be carrying about tuberculous glands or nodules that may at any time produce serious disease. Up into early adult life, these tuberculous foci may harbor living tubercle bacilli, and while this condition exists, a child is not without danger of an extension of the disease.

Into the group designated suspects were placed the children who reacted to the tuberculin test but who did not show definite tracheobronchial tuberculosis or primary lesions. The film may show areas of increased density at the hila, in which there are ill defined shadows that might be tuberculous glands. Possibly not enough calcium has yet been deposited to give them a clear-cut outline. For this reason, these cases are suggestive of tuberculosis, but they could not be classified with the hilum group.

TABLE 1.—*Summary of the Analysis of the Results Found in the Examination of 24,758 Children*

	Number	Per Cent
Number of children examined	24,758	
Number of boys examined	10,166	41.0
Number of girls examined	14,592	58.9
Number positive to Pirquet test	7,351	29.6
Number of contacts examined	3,994	16.1
Number of known contacts in the reactors	1,958	26.6
Number of known contacts in the nonreactors	2,036	11.6
Number diagnosed as hilum tuberculosis	925	3.7
Number classified as suspects	2,586	10.4
Number diagnosed as pulmonary tuberculosis	59	0.02
Number with visible cervical glands	1,189	4.8
Number with defective teeth	11,807	47.7
Number with enlarged or diseased tonsils and adenoids	5,334	21.5
Number with poor posture	12,226	49.3
Number with heart murmurs	376	1.5
Possible etiologic factors for heart murmurs		
(*a*) Tonsillitis	111	29.6
(*b*) Scarlet fever	55	14.6
(*c*) Rheumatism	42	11.2
(*d*) Influenza	91	24.2

Into the suspect group we also put the reactors who show marked malnutrition, even if the roentgenogram is negative.

We have no evidence to prove that a malnourished child, infected with tubercle bacilli, is any more certain to develop tuberculosis than one that is well nourished. It does seem logical, however, to try to raise the standard of health of such children as much as possible by better care and closer supervision. Let us hope that by such means we can increase that intangible thing which we call resistance and so prevent the infected child from developing tuberculous disease.

COMMENT ON TABLES

It is interesting to note in table 1 that there were 17 per cent more girls examined than boys, although there are more boys in the schools for Massachusetts than girls. This would indicate that girls show more underweight, according to the standard height and weight tables.

The percentage of reactors, 29.6, is lower than has been reported in many surveys for children of similar ages.

Only one third of the children who had visible cervical glands reacted to the tuberculin test. This shows that other infections besides tuberculosis are responsible for at least two thirds of the cases of cervical adenitis.

Table 2 and chart 1 show that for age there is a gradual trend upward in the percentage of reactors from 20 per cent at 5 years to 30 per cent at 10 and 35

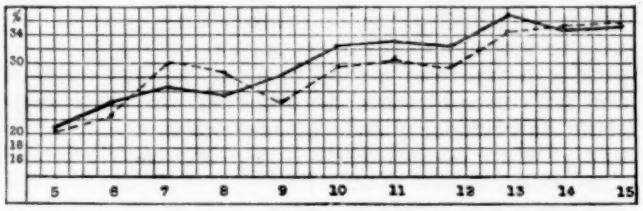

Chart 1.—Upward trend in percentage of reactors between 5 and 15 years of age: solid line, boys; broken line, girls.

TABLE 2.—*Relation of Positive Pirquet Test to Age and Sex*

Age	Boys		Girls	
	Number Examined	Per Cent Reactors	Number Examined	Per Cent Reactors
5	290	20.7	340	20.9
6	807	24.1	843	22.7
7	999	26.4	1,218	30.1
8	1,051	25.8	1,540	28.4
9	1,144	28.6	1,705	24.7
10	1,188	32.3	1,942	29.9
11	1,241	33.3	2,015	30.6
12	1,202	32.5	1,896	29.8
13	1,108	35.8	1,587	34.5
14	715	34.3	963	34.7
15	421	35.1	513	35.3
Total	10,166	32.5	14,592	29.1

per cent at 15. The percentage of reactors for the whole group of boys, 32.5, is but little higher than that for the girls, 29.1. The slight variation in the different age groups by sex is too small to be of any significance.

TABLE 3.—*Relation of Pirquet Reaction to Age and Contact, Urban and Rural*

Age	Urban				Rural—Towns Under 2,500 Population			
	Total Number Tested	Percentage Reacted in			Total Number Tested	Percentage Reacted in		
		Total	Contacts	Noncontacts		Total	Contacts	Noncontacts
5	555	20.7	35.2	15.7	75	21.3	37.5	16.9
6	1,489	23.5	48.4	17.6	161	22.3	61.9	16.4
7	2,011	25.2	47.7	20.6	236	24.5	53.5	20.6
8	2,305	27.3	49.7	22.9	286	26.9	42.4	24.9
9	2,523	25.3	46.8	23.0	326	22.3	42.8	20.4
10	2,802	31.2	46.9	28.0	328	27.4	60.7	24.3
11	2,916	32.4	51.4	28.9	340	24.4	45.4	22.1
12	2,786	30.6	47.5	27.3	312	32.3	60.6	29.0
13	2,438	35.8	52	32.7	257	31.5	68.5	26.1
14	1,525	34.2	50.7	31	152	36.7	58.3	35.0
15	778	35.6	51.3	31.9	156	33.3	70.8	26.5
Total	22,129	29.9	48.5	26.2	2,629	27.5	54.9	24.1

The outstanding features of the analysis presented in table 3 are that:

1. There is very little difference in the percentage of reactors in the urban and rural children of Massachusetts.

2. The percentage of reactors in contact children is approximately twice that of the noncontact group.

Table 4 illustrates the early infection of the contact children. Forty-eight per cent reacted at the age of 6 years, and there is very little increase in the percentage thereafter up to 15.

The noncontacts show a very gradual rise from 15 per cent to a maximum of 32 per cent at 13 years of age. It was also found that a further analysis of this group of children did not show noteworthy variation in

TABLE 4.—*Positive Pirquet Test for Age, Contact and Noncontact Urban Children*

Age	Contact			Noncontact		
	Number Tested	Number of Reactors	Percentage of Reactors	Number Tested	Number of Reactors	Percentage of Reactors
5	142	50	35.2	413	65	15.7
6	283	137	48.4	1,206	213	17.6
7	337	161	47.7	1,674	346	20.6
8	380	189	49.7	1,925	442	22.9
9	391	183	46.8	2,132	492	23.0
10	475	223	46.9	2,327	652	28.0
11	455	234	51.4	2,461	713	28.9
12	452	215	47.5	2,334	639	27.3
13	390	203	52	2,048	670	32.7
14	252	128	50.7	1,274	395	31
15	146	75	51.3	632	202	31.9
Total	3,703	1,798	48.5	18,426	4,829	26.2

the incidence of infection between boys and girls in both the contact and the noncontact groups.

Table 5 shows that approximately 45 per cent of the children were of average or more than average weight. A partial explanation of this is that many contact children, regardless of weight, were brought in for examination and 16 per cent of all the children examined were said to be contacts. Aside from the contacts and special cases, the other children were supposed to be 10 per cent or more underweight. However, when carefully weighed and measured by our nurses on the day of examination, only 37 per cent were actually found to be in the 10 per cent or more underweight group.

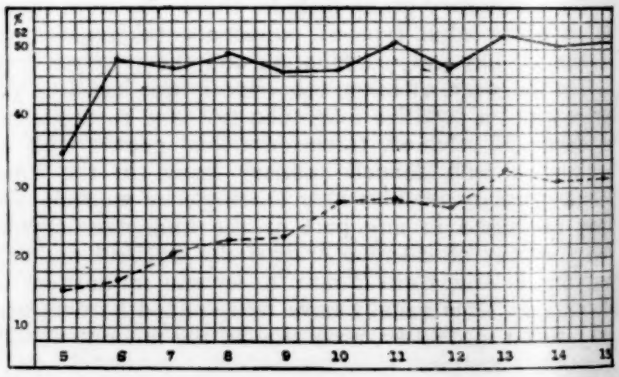

Chart 2.—Percentage of infections in contacts (solid line) and noncontacts (broken line).

TABLE 5.—*Relation of Pirquet Reaction to Weight and Contact*

Weight	Total Examined	Per Cent Reactors in Total	Number Contacts	Per Cent Reactors in Contacts	Number Noncontacts	Per Cent Reactors in Noncontacts
Average and overweight	11,119	29.9	2,671	49.8	8,448	23.6
7% underweight	4,434	28.3	480	44.1	3,954	26.0
10% underweight	5,806	28.8	544	57.5	5,262	26.9
15% underweight	3,399	31.9	299	46.7	3,100	29.0
Total	24,758	29.6	3,994	49.0	20,764	25.8

The percentage of reactors in the total group showed practically no variation in the different weight groups. The percentage of reactors in the contact varied very little in the different weight groups, but it was about twice as high as in the noncontact groups. The per-

centage of reactors in the noncontact group showed a gradual trend upward from 23 per cent in the normal group to 29 per cent in the 15 per cent underweight group. This is enough difference to appear to have some significance.

Surely underweight children would have no more opportunities for infection than others. May we not conjecture, as a result of the study of this table, that infection with tubercle bacilli does hinder normal growth in some children, and question whether this hindrance depends on the amount of infection, or on the child's resistance or lack of it at the time the infection takes place?

As table 5 shows that 66 per cent of the contacts were of average weight or overweight, however, this question is virtually answered. Moreover, we are certain of our ground when we state that a child with known contact has twice the hazard of becoming infected as has a noncontact, and that about 50 per cent of the contacts become reactors by the time they are 6 years old. This percentage does not increase up to the age of 15 to any appreciable degree.

TABLE 6.—*Percentage of Hilum and Pulmonary Tuberculosis for Sex in Total*

	Total No. Examined	Hilum	Per Cent	Pulmonary	Per Cent
Male	10,166	392	3.8	11	0.01
Female	14,592	531	3.6	39	0.026
Total	24,758	923	3.7	50	0.02

Percentage of Hilum and Pulmonary Tuberculosis for Sex in Contacts

	Total No. Contacts	Hilum	Per Cent	Pulmonary	Per Cent
Male	1,888	169	8.9	4	0.021
Female	2,106	227	10.6	11	0.052
Total	3,994	396	9.9	15	0.03

Percentage of Hilum and Pulmonary Tuberculosis for Sex in Noncontacts

	Total No. Noncontacts	Hilum	Per Cent	Pulmonary	Per Cent
Male	8,278	223	2.6	7	0.008
Female	12,486	304	2.4	28	0.022
Total	20,764	527	2.5	35	0.016

The percentage of hilum cases in the whole group, as shown in table 6, is about the same for boys and for girls.

The percentage of pulmonary cases in the girls is two and one-half times that of boys.

In the contact group the girls have 1.7 per cent more hilum tuberculosis and two and one-half times as many pulmonary cases as the boys.

The noncontact group shows the amount of hilum tuberculosis to be about the same for the two sexes, but the percentage of pulmonary cases in girls is about three times that found in the boys.

When the incidence of tuberculosis in the contact and noncontact group is compared, about four times as much hilum tuberculosis and twice as much pulmonary tuberculosis is found in the contacts as in the noncontact children.

Table 7 shows the sharp rise in the number of hilum cases between the ages of 5 and 7 in the contact group. In the age period 5 and 7, the increase is 6 per cent. In the following 7 year age period, from 7 to 14 years, the increase is only 1.5 per cent.

The noncontact group shows a very gradual increase in the number of cases in children from 7 to 15 years, and there was no increase in the number of cases in the 5 to 7 year group.

In the two groups combined, the increase in the number of cases at 7 years of age is again quite noticeable.

TABLE 7.—*Hilum Cases for Age and Contact in Reactors*

	Contact			Noncontact			Contact and Noncontact Combined		
Age	No. of Reactors	No. of Hilum Cases	Percentage of Hilum Cases	No. of Reactors	No. of Hilum Cases	Percentage of Hilum Cases	No. of Reactors	No. of Hilum Cases	Percentage of Hilum Cases
5	50	4	8.0	65	6	9.2	115	10	8.6
6	137	23	16.7	213	12	5.6	350	35	10.0
7	161	44	27.3	346	31	8.9	507	75	14.7
8	189	41	21.6	442	46	10.4	631	87	13.7
9	183	39	21.3	492	48	9.7	675	87	12.9
10	223	42	18.8	652	67	10.2	875	109	12.4
11	234	56	23.9	713	89	12.4	947	145	15.3
12	215	44	20.4	639	68	10.6	854	112	13.1
13	203	51	25	670	83	12.3	873	134	15.3
14	128	32	25	395	53	13.4	523	85	16.2
15	75	20	26.6	202	24	11.8	277	44	15.8
Total	1,798	396	22.0	4,829	527	10.9	6,627	923	13.8

An analysis of these cases by sex, as given in table 8, without dividing them into contact or noncontact groups, shows but little variation, except for a slight trend upward in the age period from 12 to 15 in the girls. When divided, however, as seen in chart 4, two noteworthy points are brought out in the contact group: (1) the sharp rise in the number of cases in the contacts at 7 years of age to be seen in both sexes, and (2) the decided separation of the boys and girls at 12 years of age. As shown in chart 4, the number of cases occurring in the girls rises sharply, reaching its maximum at the age of 15. The number of cases in the boys at 12 years takes a decided drop, and continues at a much lower level.

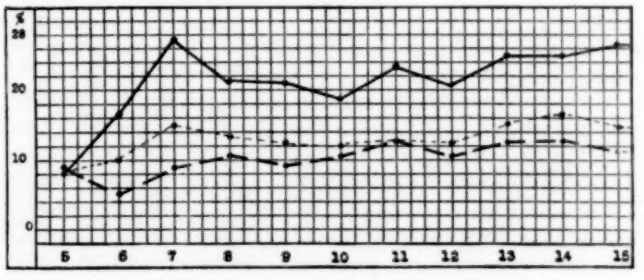

Chart 3.—Increase in cases of hilum tuberculosis: solid line, contacts; long dashes, noncontacts; short dashes, combined.

TABLE 8.—*Hilum Cases for Sex and Contact*

	Contact Reactors						Noncontact Reactors					
	Boys			Girls			Boys			Girls		
Age	No. of Reactors	Hilum Cases No.	Hilum Cases %	No. of Reactors	Hilum Cases No.	Hilum Cases %	No. of Reactors	Hilum Cases No.	Hilum Cases %	No. of Reactors	Hilum Cases No.	Hilum Cases %
5	20	1	5.0	30	3	10.0	35	4	11.4	30	2	6.6
6	74	10	13.5	63	13	20.6	100	8	8.0	113	4	3.5
7	86	22	25.5	75	22	29.3	150	17	11.3	196	14	7.1
8	89	17	19.1	100	24	24.0	153	16	10.4	289	30	10.3
9	92	21	22.8	91	18	19.7	197	22	11.1	295	26	8.8
10	110	22	20.0	113	20	17.6	232	32	13.7	420	35	8.3
11	111	26	23.4	123	30	24.3	268	35	13.0	445	54	12.1
12	104	16	15.3	111	28	25.2	246	24	9.7	393	44	11.1
13	91	16	17.5	112	35	31.2	279	35	12.5	391	48	12.2
14	57	10	17.5	71	22	30.9	163	18	11.0	232	35	15.0
15	41	8	19.5	34	12	35.2	88	12	13.6	114	12	10.5
Total	875	169	19.3	923	227	21.5	1,911	223	11.6	2,918	304	10.4

At 15 years, the percentage of cases in the girls is 35; in the boys, only 19. This observation is of great significance when taken in connection with the high incidence of pulmonary tuberculosis in adolescent girls.

Table 9 brings out in a striking way the relation of underweight and hilum tuberculosis. Again, contact and underweight are found associated in many cases of hilum tuberculosis, but, as was shown in table 8, it is the girls who suffer most from this combination of circumstances.

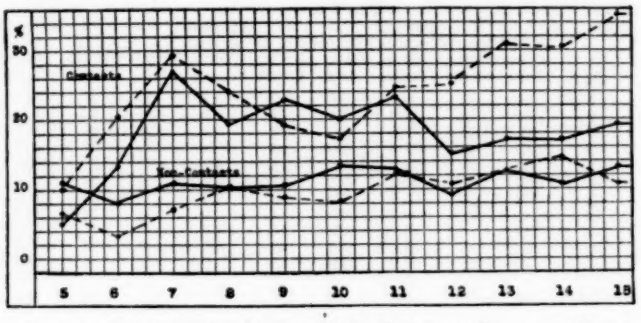

Chart 4.—Incidence of pulmonary tuberculosis according to sex in contacts and noncontacts; solid line, boys; broken line, girls.

TABLE 9.—*Hilum Tuberculosis in Relation to Weight and Contact for Sex*

	Normal Weight	7% Underweight	10% Underweight	15% Underweight	Total
Contact Boys:					
Number of reactors	659	97	92	27	875
Number of cases	119	19	24	7	169
Percentage	18.0	19.5	26.0	25.9	19.3
Contact Girls:					
Number of reactors	570	120	135	98	923
Number of cases	114	36	34	43	227
Percentage	20.0	30.0	25.1	43.8	24.5
Noncontact Boys:					
Number of reactors	845	394	470	202	1,911
Number of cases	89	40	65	29	223
Percentage	10.5	10.1	13.8	14.3	11.6
Noncontact Girls:					
Number of reactors	934	535	811	638	2,918
Number of cases	84	58	79	83	304
Percentage	8.9	10.8	9.7	13.0	10.4

The noncontacts who developed hilum tuberculosis appear to be less influenced by their disease, as they were not so much underweight. These so-called noncontacts, of course, are in reality unknown contacts. We may assume, however, that in this group the period of exposure to a case of tuberculosis was accidental or, at least, not long continued. Therefore, the dose of bacilli received would be small and infrequent, and a child would have time to get adjusted to the infection. When, however, the amount of bacilli is larger or more often repeated, as would be the case in long-continued contact, then an unfavorable effect on growth and nutrition should be expected. It would appear then that malnutrition is the effect and not the predisposing cause of tuberculosis.

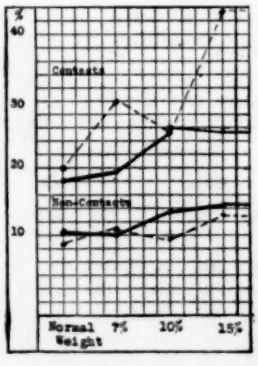

Chart 5.—Relation of weight to infection in contacts and noncontacts; solid line, boys; broken line, girls.

Pulmonary tuberculosis is rare in children, but it may occur at any age from 5 to 15, as shown in table 10. It is found most frequently at the ages of 14 and 15 in our group, when it is approximately 0.5 per cent. This percentage probably is higher than it would be if all of the school children had been examined without any attempt at selection, because our group contained 16 per cent contacts, and it has been shown that among the contacts there are twice as many pulmonary cases.

An analysis of these fifty cases shows that nearly one half of the contacts and one third of the noncontacts were average or above average weight. Therefore, weight, as a factor or symptom, has little or no significance in the diagnosis of pulmonary tuberculosis in children.

TABLE 10.—*Analysis of Fifty Cases of Pulmonary Tuberculosis in Children*

In Relation to Age

Age	No. Examined	Contact	Noncontact	Total
5	630	1	1	2
6	1,650	0	0	0
7	2,247	0	4	4
8	2,591	1	2	3
9	2,849	2	0	2
10	3,130	1	6	7
11	3,256	0	3	3
12	3,098	4	4	8
13	2,695	0	9	9
14	1,678	3	5	8
15	934	3	1	4
Total	24,758	15	35	50

In Relation to Weight and Contact

Weight	Contacts Number	Contacts Per Cent	Noncontacts Number	Noncontacts Per Cent	Total Number	Total Per Cent
Average and overweight	7	46.6	11	31.4	18	36
7% underweight	5	36.6	4	11.4	9	18
10% underweight	2	13.3	10	28.5	12	24
15% underweight	1	6.6	10	28.5	11	22
Total	15	30.0	35	70.0	50	

SUMMARY

1. There is very little difference in the incidence of hilum tuberculosis in boys and girls, taken as a whole group.

2. In the contact group there were many more girls at ages 12 to 15 who were found to have hilum tuberculosis.

3. Many more girls than boys in the contact hilum group were underweight. This was very marked in the 15 per cent underweight group.

4. In the noncontact group, there was very little difference in the number of cases of hilum tuberculosis in the different weight groups.

5. Malnutrition does not appear to be a predisposing cause of tuberculosis, but when it exists it may be the result of the tuberculous infection.

That appears to be the only logical explanation of the increase of nearly 10 per cent in the number of noncontact reactors in the 15 per cent underweight group, as compared with those of average weight. Further evidence tending to confirm this view is the analysis showing many more cases of hilum tuberculosis in 12 to 15 year old contact girls who are 15 per cent underweight. For some reason difficult to explain, this condition is not found in the contact boys of the same age group.

This increase in the number of cases of pulmonary tuberculosis in girls coincides with the normal period of accelerated growth at the age of puberty.

From the point of view of public health, the following facts should be kept in mind:

Of the children exposed to pulmonary tuberculosis, 50 per cent become infected by the time they are 6 years old. One year later, at 7, they show a high percentage of hilum tuberculosis.

Girls 15 per cent underweight, with a history of contact, will show a much higher percentage of hilum tuberculosis in the age group 12 to 15.

Pulmonary tuberculosis occurs rarely in young children, but may be found to the extent of 0.5 per cent in those 14 and 15 years of age.

Pulmonary tuberculosis is from two to three times as common in girls as in boys.

That one third of the pulmonary cases found were in children who were not underweight, and that 20 per cent of the hilum cases found in the contact group were in normal or overweight children, is conclusive evidence that all children, regardless of weight, should be given a thorough examination for tuberculosis.

VITAMIN REQUIREMENTS OF NURSING YOUNG

1. THE UNUSUAL RESPONSE OF NURSING YOUNG (MUS NORVEGICUS-ALBINUS) TO VITAMIN B ADMINISTRATIONS: PRELIMINARY REPORT *

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In a recent communication I [1] reported that, while a cold 75 per cent alcoholic extract of 6.5 Gm. of whole wheat embryo per animal daily furnishes enough vitamin B for excellent growth, it is necessary to supply the same alcoholic extract of at least 22.4 Gm. of wheat germ per lactating rat daily to furnish enough vitamin B for normal lactation.

I have now developed a quantitative biologic method, employing synthetic diets composed of purified food substances, for the study of vitamin B in lactation. The details of the method will be published soon elsewhere, but essentially the technic is as follows: Mothers with their litters born from our stock colony receiving stock ration 1 [1] are separated on the day of the birth of the young, the litter reduced to six and then placed on the following vitamin B deficient diet: casein (purified), 20.0; agar-agar, 2.0; butter fat, 5.0; McCollum's salt mixture 185, 4.0, and dextrin, 69.0. On such diets lactating rats will rear their young for from ten to twelve days, during which period the mothers lose from 20 to 30 per cent of their body weights, transferring what stored vitamin B they have into the milk in order to prolong lactation. Each female with her litter is separated in an individual compartment containing a false screen bottom, so that there is no access to feces, and is allowed a liberal supply of fresh distilled water daily. The mother is quite comfortable with its litter in a galvanized tin box containing an abundance of shavings and fine excelsior for bedding. Daily records are kept of food consumption, and mother and young are weighed daily. When the young reach a maintenance curve or gain only from 2 to 3 Gm. the previous twenty-four hours, showing a depletion of storage of vitamin of the mother, the curative method is used by administering brewers' yeast quantitatively in petri dishes to the mother. By such a procedure it was found that it requires 1,500 mg. of Harris' concentrated brewers' yeast per lactating rat daily to wean our litters successfully when the young do not have access to any traces of vitamin B during the nursing period.

During the last few weeks I have had occasion to examine biologically by the method described a highly concentrated preparation of yeast prepared for me by the Research Laboratories of Eli Lilly and Company. Surprisingly, I was able to accomplish the same results with only 500 mg. per nursing female daily, using the most potent fraction. Using a less potent fraction, when it became apparent that a lactating female was failing on 500 mg., and the young developed posterior paralysis, muscle chills, and screaming running fits, so that several young jumped out of the laboratory assistant's hand three time, I decided to attempt to save the litter, weighing collectively 114 Gm., or 19 Gm. each, at a stage when the young were entirely dependent on the mother's milk, and when their digestive apparatus was not yet sufficiently developed to take solid food. The paralysis of the young beginning at the posterior quarters extended to the jaws, so that they could swallow only with great difficulty. By the use of a medicine dropper we succeeded in administering 450 mg. of the vitamin in aqueous solution to the young. After a few drops of the vitamin solution had been forced down their throats they immediately overcame their spasms and in five minutes could swallow with considerable ease, and little difficulty was then experienced in getting the young to swallow the rest of the vitamin dosage. They were then observed resting bunched up in a group and nursing after four hours or so. The mother was allowed only 50 mg. of the vitamin. Although the litter had gained only 1 Gm. during a forty-eight hour period preceding the vitamin administration, it gained 23 Gm. during a forty-eight hour period subsequent to the vitamin therapy, and the litter was successfully weaned seven days after the initiation of the vitamin allowance; in other words, when rearing of the young at a certain stage in lactation became a complete failure when the mother received 500 mg. of vitamin, it developed into a complete success when the young received 450 mg. and the mother only 50 mg. The young were observed frequently nursing until the termination of the experiment, so they were deriving all their nutriment outside of vitamin B from their mother.

I have since confirmed these observations with dozens of litters, and have just successfully reared a litter when the mother received only 20 mg. of a more highly concentrated preparation and the litter only 120 mg., beginning the therapy at the point of failure of the young; i. e., employing the curative method.

By drawing out a medicine dropper to a fine capillary, we are now able to save failing young earlier in lactation when the baby rats are still blind, lying flat on their backs or sides constantly nursing, at a weight of 12 Gm. each, or approximately one-third ounce. We follow this procedure with decided success when it is determined that the mother is dissipating considerable of the vitamin apportioned to her in the metabolism of transfer to the milk. My quantitative method discloses that the nursing young are unable to store any appreciable amounts of the B vitamin and that they need certain dosages daily (the amounts depending on their age) or subsequent failure is quite imminent.

On postmortem examination we find the young dying with their stomachs full of curd, and accompanying hemorrhages of the bones, particularly at the juncture of the occipitals and parietals.[2]

It is quite possible that, although beriberi in an accentuated form is seldom encountered in this country in the human baby, a large proportion of the infant mortality during the first year of life which is associated with gastro-intestinal disturbances may be due to

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* From the University of Arkansas College of Agriculture.

* Research paper 48, Journal Series, University of Arkansas.

* Aided by Grants from Eli Lilly and Company, Indianapolis, and the Committee on Scientific Research of the American Medical Association.

1. Sure, Barnett: J. Biol. Chem. 74: 55-69, 1927.

2. Sure, Barnett; and Schilling, S. J.: J. Biol. Chem. 74: lxiv, 1927.

vitamin B deficiencies. Such vitamin deficiencies may be brought about by the character of the present American diet, which is composed largely of degerminated cereals, sugar and meat, and in addition by the inefficiency of the nursing mother to secrete her daily intake of vitamin B quantitatively and rapidly into the milk, which is indispensable for infant nutrition and welfare. We are studying the problem further in great detail, the results of which will be communicated in scientific journals.

While pediatricians already recognize the indispensability of the antirachitic and antiscorbutic vitamins for nursing infants, which is being furnished in the form of cod liver oil and orange or tomato juice, no provision is as yet being made for vitamin B therapy, and it is hoped that the results of my investigations will have clinical human application.

DUODENAL ULCER SYMPTOM COMPLEX IN PATIENTS NOT HAVING ULCER *

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BROOKLYN

The pendulum has swung from a state of ignorance concerning duodenal ulcer to a stage at which every symptom complex of pain, food, comfort and pain is diagnosed as due to ulceration of the duodenum. While it is generally acknowledged that the history of the patient is of the greatest importance in arriving at a correct diagnosis, nevertheless, the tendency to make a diagnosis of duodenal ulcer almost on the history alone should be accompanied with a word of caution. The symptoms on which diagnoses are based are, according to MacKenzie,[1] reflex in origin. Whether these reflexes are disturbed by the entrance of the stimulus through the nervous system or through the circulation, the expression of the symptoms in individuals will vary, as pointed out by Libman,[2] according to their sensitiveness.

When the difficulties in the diagnosis of duodenal ulcer are considered, the need for more accurate recognition of symptomatology becomes apparent, particularly in this era of surgery. Ryle [3] has said: "Visceral pain has a definite relationship to visceral function and expresses perverted activity rather than structural disease."

In a series of 250 cases which presented strong evidences, from a clinical standpoint, of a duodenal ulcer, it was found that eighty-two cases (32 per cent) presented, on repeated examination, negative roentgen-ray evidence and no blood in the stools. Many of these patients had had symptoms for months and years. In ten patients, the question of an ulcer of the duodenum could not be excluded, and these patients will not be discussed here.

The causative factors that gave rise to this symptom complex, in their order of frequency, are:

1. Tobacco smoking, thirty-five cases (41.1 per cent).
2. Chronic gallbladder disease (with and without stones), eighteen cases (23.1 per cent).
3. Constitutional conditions (vagosympathicotonia, neurosis), fifteen cases (18.2 per cent).
4. Chronic appendicitis, seven cases (8.7 per cent).
5. Miscellaneous:
   (*a*) Postoperative adhesions, three cases (3.9 per cent).
   (*b*) Colon disturbances (constipation, mucous colitis, ulcerative colitis), two cases (2.6 per cent).
   (*c*) Epigastric hernia, one case (1.2 per cent).
   (*d*) Syphilis (tabes dorsalis), one case (1.2 per cent).

The response to the commonly accepted dietetic and therapeutic measures, with amelioration or disappearance of symptoms, is no proof that an ulcer existed, and further, roentgenographic evidence may not disclose a duodenal ulcer even when one is present. The final proof of the existence of ulcer must rest with a pathologist. Just as the duration of an ulcer cannot be measured by the duration of the clinical symptoms, neither can the presence of ulcer be proved when the most active clinical symptoms persist. Smithies [4] has stated that there are many factors to be considered in prognosing a cure of a peptic ulcer. That ulcers may run their course without producing any clinical symptoms is shown by Wilkie.[5] The diagnosis of gastric disease is at times simple and obvious, but at other times "it may be beset with difficulties so great that an accurate answer to the problem cannot with certainty be obtained, even when all modern resources have been utilized in the examination." [6]

TABLE 1.—*Duodenal Ulcer Symptom Complex: Analysis of Cases*

Order of Frequency	Group	No.	Per Cent	Per Cent Males	Per Cent Females	Duration of Symptoms
1	Tobacco smoking	35	41.1	94	6	1-6 years
2	Chronic gallbladder disease (with and without stones)	18	23.1	0	100	6 mos.-3 yrs.
3	Constitutional conditions	15	18.2	80	20	2-14 years
4	Chronic appendicitis	7	8.7	72	28	4 mos.-3½ yrs.
5	Miscellaneous:					
	(*a*) Postoperative adhesions	3	3.9	0	100	6 mos.-6 yrs.
	(*b*) Colon disturbances	2	2.6	0	100	1-1½ years
	(*c*) Epigastric hernia	1	1.2	100	0	11 years
	(*d*) Syphilis (tabes dorsalis)	1	1.2	100	0	6 months

In this series of eighty-two patients, the duodenal ulcer symptom complex was due to reflex causes rather than to local disease, because:

1. Treatment directed toward the underlying condition responsible for the symptoms brought about relief.
2. Repeated fluoroscopic and roentgen-ray examinations continued to give negative results.
3. There was continued absence of blood in the stool.
4. Freedom from symptomatology was noted for a period of from one to three years.

The cycle of pain, food, comfort and pain, for which we are indebted to Moynihan,[7] is one of the most vivid symptom complexes found in all medicine. To this English surgeon, and to the Mayos in this country, we owe the advances that have helped simplify the diagnosis of duodenal ulcer.

In the 250 patients who presented themselves with a duodenal ulcer symptom complex, and in whom one third did not present evidence of duodenal ulcer, observations were recorded during a period of ten months to three years.

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* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

1. MacKenzie, James: Disturbed Reflex in the Production of Symptoms, Brit. M. J. **1**: 3135 (July 29) 1921.
2. Libman, Emanuel: Observations on Sensitiveness to Pain, Tr. A. Am. Phys. **41**: 305, 1926.
3. Ryle, J. A.: Gastric Function in Health and Disease, New York, Oxford University Press, 1926.
4. Smithies, Frank: Factors to be Considered in Prognosing Cure of Peptic Ulcer, Ann. Clin. Med. **2**: 262 (Jan.) 1924.
5. Wilkie, D. P. D.: Observations on the Pathology and Etiology of Duodenal Ulcer, Edinburgh M. J. **13**: 196 (Sept.) 1914.
6. MacLean, Hugh: Modern Views on Digestion and Gastric Disease, New York, Paul B. Hoeber, 1926.
7. Moynihan, B. G. A.: Duodenal Ulcer, Philadelphia, W. B. Saunders Company, 1910.

TOBACCO SMOKING

Included in the group of thirty-five patients with a history of tobacco smoking were two women, aged 21 and 23, respectively. The rest were men, of the average age of 42. Both women smoked cigarets only, about fifteen a day, over a period of two years. Among the men, cigars and cigarets were used in about equal amounts; in some, both cigars and cigarets were consumed, and one patient smoked a pipe. The duration of symptoms among the male patients varied from one to six years. In 40 per cent, gastric secretion was increased, and in the rest it remained normal. The Boas-Ewald meal showed hyperacidity in 32 per cent, hypo-acidity in 40, and normal acidity in 28 per cent. The Wassermann test was positive in one patient.

Roentgen-ray examination showed pylorospasm in 90 per cent of the cases. Tonus was increased in 52 per cent, decreased in 30 per cent, and normal in 18 per cent. Peristalsis was increased in 65 per cent, decreased in 30 per cent, and normal in 5 per cent. A six hour study showed the stomach empty in all patients, and a colonic hypermotility in 15 per cent.

One man, aged 21 years, was of particular interest because he had a typical symptom complex extending over a period of ten months prior to his appearance for examination. Because of the onset of vomiting and a marked pain in the epigastrium, he was admitted to a hospital and kept under observation. His chief complaints were severe pain from two to three hours after meals, relieved by alkali or food. Gastric examination showed an increased secretion, and fractional gastric study, according to the Rehfuss method, showed marked height of the curve at the end of from two to two and one-half hours. Although the roentgen ray did not show sufficient deformity of the bulb to imply the presence of an ulcer, and although there was no blood in the stool, the patient was operated on, because of severe pain, vomiting and the clinical history, with a diagnosis of duodenal ulcer. Examination of the pyloric region of the duodenum and stomach failed to show any pathologic condition whatever. After his discharge from the hospital, the patient, who had been accustomed to smoking thirty cigarets daily, stopped smoking for a period of ten months; he was relieved of all his symptoms and felt most comfortable. When tobacco smoking (cigarets) was resumed, the symptoms promptly recurred, and he was again admitted, one year after his first admission. Roentgen-ray examination was again negative, and no blood was found in the stool. With the cessation of smoking, the symptoms subsided, and he has remained well since that date.

Rolleston[8] recently called attention to a similar symptom complex in some of his patients who used tobacco freely. Kulbe[9] noticed that the abuse of tobacco by some of his patients resulted in attacks at night between 12 and 2 o'clock, and that while these pains were localized in the epigastrium, they not infrequently radiated to the back and spread over the whole abdomen. The diagnosis of gallstones or ulcer was erroneously made. Crämer[10] states that the viscero-nervous system is especially susceptible to nicotine. Wagner[11] insists that all subjective, and even roentgen-ray, signs of duodenal ulcer can be produced by the excessive use of tobacco.

8. Rolleston, H.: Practitioner **118**: 1-6 (Jan.) 1927.
9. Kulbe, J.: Quoted in Ars Medici, 1924, number 6, p. 247.
10. Crämer, Friedrich: Nervous Stomach Affections, München med. Wchnschr. **71**: 275 (Feb. 29) 1924.
11. Wagner, F.: Duodenal Syndrome in Its Production of Nicotine, Med. Klin. **20**: 562-565 (April 27) 1924.

GALLBLADDER DISEASE (WITH AND WITHOUT STONES)

The symptom complex of duodenal ulcer was associated with disease of the gallbladder in eighteen patients, all women of the average age of 34. All these patients either had attacks of biliary colic or marked dyspepsia, following pregnancy, or presented definite clinical evidence of gallstone disease. The duration of symptoms varied from six months to three years, with intermittent periods of well being for a week or several months. There was increased gastric secretion in 10 per cent; normal gastric acidity in 35 per cent; hyperacidity in 16 per cent; hypo-acidity in 39 per cent, and achylia in 10 per cent. The Wassermann reaction was negative in all cases

Roentgen-ray examination showed pylorospasm in 82 per cent of the patients. It is interesting to note that of the 10 per cent in whom free hydrochloric acid was not present, half had pylorospasm. The tonus was normal in 50 per cent, increased in 25 per cent, and decreased in 25 per cent. Peristalsis was increased in 32 per cent, decreased in 45 per cent and normal in 23 per cent. A six hour study showed absence of gastric residue, and a colonic hypermotility in 5 per cent.

Kelling[12] remarks that all the symptoms of a duodenal ulcer may be brought about by gallstones. Barker[13] and Cheney[14] make a similar statement. Occasionally, duodenal ulcer and chronic disease of the gallbladder may coexist. Such a case is mentioned by Mix.[15] A similar case came under my observation, but is not reported in this series. Eustermann[16] has called attention to the fact that in the young, dyspepsia is often thought to be associated with a diseased appendix or some lesion of the duodenum or stomach, whereas in reality the gallbladder may be the cause of the symptoms. This author, in a report of 1,075 cases of gastroduodenal ulcer, mentions that diseases of the gallbladder were associated with 40 per cent of his cases.

TABLE 2.—*Gastric Secretion*

Order of Frequency	Group	Per Cent Normal	Per Cent Increased
1	Tobacco smoking	60	40
2	Chronic gallbladder disease (with and without stones)	90	10
3	Constitutional conditions	30	70
4	Chronic appendicitis	72	28
5	Miscellaneous:		
	(*a*) Postoperative adhesions	100	0
	(*b*) Colon disturbances	100	0
	(*c*) Epigastric hernias	0	100
	(*d*) Syphilis (tabes dorsalis)	0	100

The differential diagnosis between gallbladder disease and ulcer may be so great that, as Bloch[17] states, "nothing short of an exploratory operation will clarify the diagnosis."

Whether the pain coming on from two to three hours after meals is due to an overdistended gallbladder, or whether the pain occurring between meals is the result of stones in the gallbladder, I have noticed, in this group of patients, that small amounts of food or alkali

12. Kelling, G.: Die Beziehungen zwischen Cholelithiasis und Ulcus Duodeni, Arch. f. Verdauungskr. **28**: 63 (June) 1921.
13. Barker, L. F.: Hints for Diagnosis of Disease of Gallbladder and of Biliary Passages, J. A. M. A. **75**: 1104 (Oct. 23) 1920.
14. Cheney, W. F.: Diagnosis of Gallbladder Disease, Am. J. M. Sc. **160**: 469 (Oct.) 1920.
15. Mix, C. L.: Duodenal Ulcer Combined with Cholecystitis, M. Clin. N. Amer. **7**: 337-348 (Sept.) 1923.
16. Eustermann, G. B.: Diseases of the Gallbladder in Young Individuals, Tr. Am. Gastro-Enterological A., 1923, pp. 1-5.
17. Bloch, L.: Differential Diagnosis of Duodenal Ulcer and Gallbladder Disease, Illinois M. J. **39**: 209 (March) 1921.

promptly relieved their symptoms. The relationship of the gallbladder to the duodenum and pylorus, with their associated nerve supplies, goes far to explain the similarity of symptoms.

CONSTITUTIONAL FACTORS (VAGOSYMPATHICOTONIA, NEUROSIS)

Of the fifteen patients in the group with constitutional factors who presented a duodenal ulcer symptom complex, twelve were men and three women. The duration of their symptoms varied from two to fourteen years. Three of the male patients had symptoms over a period of ten years. There was an increase in gastric secretion in about 70 per cent. Fractional analysis was done in the entire group because of the marked hypersecretion in the 70 per cent, and a true curve, as seen in duodenal ulcer, was obtained. Normal acidity was found in 25 per cent, and hypo-acidity in 5 per cent.

Eleven patients were of the hypersthenicus habitus (broad chested, stout and overweight), and four were of the Stiller habitus or hyposthenic type.

Roentgen-ray examination of this group was exceedingly interesting, for in the hypersthenic type there was a rapid emptying with slight increased tonus and slight hyperperistalsis. Pylorospasm was present only to a moderate degree in 75 per cent. Tonus was definitely increased in 23 per cent, normal in 55 per cent, and decreased in 22 per cent. Peristalsis was increased in 40 per cent, normal in 35 per cent, and decreased in 25 per cent. In four patients of the Stiller (hyposthenic) habitus, the tonus was decreased, although peristalsis was quite active and there was a definite spasm of the pylorus. Six hour study showed a slight residue in the stomach of two patients, and a colonic hypermotility in 25 per cent of all the cases.

The literature on the relation of the constitution and disturbances of the vegetative nervous system relative to gastric symptoms and disease is quite abundant. Kaufmann [18] has called attention to the association of ulcer symptoms and constitutional reaction, mentioning a case in which operation had been performed for a supposed duodenal ulcer on an individual who presented marked stigmas of disturbance of the vegetative nervous system. The clinical symptoms of duodenal ulcer in this patient had been present for years, but at the operating table and in the postmortem room, ulcer was not found. At the recent meeting of the American Gastro-Enterological Association, Kaufmann stated that even with the presence of gastroduodenal ulcer, hunger pain must be interpreted as a manifestation of constitutional derangement.

Kast [19] has noted the disturbance of the vegetative nervous system in patients presenting the symptomatology of ulcer.

Westphal and Katsch [20] believe that the syndrome of duodenal ulcer is a vegetative neurotic complex. They report two cases in which diagnosis of duodenal ulcer was made after careful study, and in which operative observations were entirely negative.

As has been pointed out by Held and Gray,[21] the anatomic and biologic factors that enter into the etiologic question of disease may well be divided into constitutional factors and conditional factors. Under the constitutional factors, the type of the individual, as noted by Draper,[22] is of great importance. Under the conditional factors responsible for the origin of symptoms suggesting duodenal ulcer are, undoubtedly, the individual reaction both to daily life and to the use of certain foods and stimulants.

Hurst [23] describes the sensation of sinking feeling and hunger pain relieved by food in persons of the hypertonic habitus who have a rapid emptying of the stomach.

Wheelon and Thomas [24] feel that gastrospasm should be considered the result of motor response to gastrointestinal irritation, setting up vagal impulses, and that these spasms give rise to hunger sensations. They conclude that "the normal stomach is one in which, added to its myogenic properties, a proper reciprocal innervation is maintained, associated with a balanced chemism. Alteration in any one of these elements will of necessity break the balance and resulting pathologic functioning or symptoms will be in proportion to the degree of severity of the alterations.

In a recent experimental study on the effect of vagus neurotomy on the pyloric sphincter, Hughson [25] has shown that, following section of the vagus trunks or gastric branches of the vagus only, reflex pylorospasm could be produced by irritation of the peritoneum. On the other hand, a reflex pylorospasm was found in all animals that had an intact vagus supply to the stomach. This response to pylorospasm always followed peritoneal irritation.

TABLE 3.—*Gastric Acidity*

Order of Frequency	Group	Normal	Hyperacidity	Hypoacidity	Anacidity
1	Tobacco smoking	28	32	40	0
2	Chronic gallbladder disease (with and without stones)	35	16	39	10
3	Constitutional conditions	25	70	5	0
4	Chronic appendicitis	14.5	71	14.5	0
5	Miscellaneous:				
	(*a*) Postoperative adhesions	0	0	100	0
	(*b*) Colon disturbances	0	0	100	0
	(*c*) Epigastric hernia	0	100	0	0
	(*d*) Syphilis (tabes dorsalis)	0	0	0	100

CHRONIC APPENDICITIS

The group with chronic appendicitis comprised seven patients, five male and two female. The duration of symptoms varied from four months to three and a half years. Gastric secretion was increased in two, and normal in five. Gastric acidity was normal in 14 per cent, decreased in 14 per cent and increased in 72 per cent. The Wassermann reaction was negative in all, and roentgen-ray examination revealed pylorospasm in five. Tonus was increased in 68 per cent, and normal in 32 per cent; peristalsis was increased in 86 per cent. A six hour study did not show gastric residue. There was a slight delay in intestinal motility in three patients, and a slight increase in motility in four.

The association of pylorospasm with chronic appendicitis is not uncommon. Hurst and Rowlands,[26] Aaron [27] and Langdon Brown [28] observed pylorospasm,

18. Kaufmann, J.: Read before the American Gastro-Enterological Association, May, 1927.
19. Kast, L.: Read before the American Gastro-Enterological Association, May, 1927.
20. Westphal, C., and Katsch, G.: The Neurotic Duodenal Ulcer, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **26**: 391, 1913.
21. Held, I. W., and Gray, Irving: Present Status of Roentgen-Ray Diagnosis of Gastric and Duodenal Ulcer, M. Clin. N. Amer. **9**: 755 (Nov.) 1925.
22. Draper, G.; Dunn, H. L., and Seegal, D.: Studies in Human Constitution, Am. J. M. Sc. **169**: 322 (March) 1925.
23. Hurst, A. F.: Guy's Hosp. Rep. **72**: 450 (Nov.) 1922.
24. Wheelon, H., and Thomas, J. E.: The Autonomic Nervous System and Disorders of the Stomach, Mod. Med. **2**: 283 (April) 1920.
25. Hughson, Walter: The Effect of Vagus Neurotomy on the Pyloric Sphincter, J. A. M. A. **88**: 1072-1076 (April 2) 1927.
26. Hurst, A. F., and Rowlands, R. P.: Guy's Hosp. Rep. **71**: 168 (April) 1921.
27. Aaron, C. D.: Chronic Appendicitis, Pylorospasm and Duodenal Ulcer, J. A. M. A. **64**: 1845 (May 29) 1915.
28. Brown, Langdon: The Sympathetic Nervous System in Disease, London, Oxford University Press, 1923.

under the fluoroscope, while exerting pressure over the region of the appendix. Aaron's patient had pain two hours after meals, accompanied by acid eructations and regurgitations. Pain was of the hunger type, due to active stomach contraction.

Brathwaite [29] speaks of the flow of lymph from the ileocecal angle to the upper abdomen as a possible cause of duodenal and gastric ulcer.

Deaver [30] and Heyd [31] mention the association of reflex gastric disturbances in appendicular diseases. Heyd discusses the mimicry of gastroduodenal ulceration by a diseased appendix. He states that epigastric pain may bear a definite relationship to the ingestion of food. It may be periodic in its recurrence, and have a chronicity estimated by weeks. He states, however, that the important differential point between chronic appendicitis and duodenal ulcer is the absence of the regularity of symptoms in the formation period.

In a recent article, I [32] reported a series of three patients who had a definite history of chronic appendicitis and whose reflex gastric symptoms were associated with so marked a pylorospasm and an increase of gastric tension that the upward pressure on the left diaphragm caused irritation of the phrenic nerve and outward radiation of pain to the left shoulder. In one of these patients who was operated on, all the symptoms disappeared.

Hughson mentions in an analysis of eighty-three cases of chronic appendicitis that all the patients gave an intermittent history of pylorospasm, and he advances the hypothesis that "spasm of the pylorus resulting either from diseases from within or adjacent to the abdominal cavity is solely due to inflammation of the peritoneal surface."

The term "achalasia" or spasm is introduced by Hurst,[33] who feels that the gallbladder is the most frequent cause of a reflex pylorospasm and chronic appendicitis next.

MISCELLANEOUS CAUSES

In the miscellaneous causes are included three cases of postoperative adhesions; two cases of colitis (one patient had a low grade nonspecific ulcerative colitis); one case of epigastric hernia, and one case of syphilis, all showing a clinical symptom complex of duodenal ulcer. Of all these cases, the most marked and persistent symptoms suggesting ulcer were present in a patient who recently came under my observation, showing, on examination, the presence of a small epigastric hernia. He was 41 years of age and had had symptoms for eleven years. There was a distinct gastric acidity curve for duodenal ulcer, with marked hypersecretion. A persistent pylorospasm was controlled only by large doses of tincture of belladonna. Gastric tonus was increased, as was peristalsis. The diagnosis of duodenal ulcer had been made on several occasions from the clinical standpoint but had never been verified roentgenologically. After negative fluoroscopic and roentgen-ray examination at two week intervals, and with absence of blood in the stool, I excluded ulcer and came to the conclusion that the small epigastric hernia just to the left of the median line and about 1 inch above the umbilicus was responsible for the symptoms.

Friedenwald and Morrison,[34] in a recent monograph on this subject, point out the importance of epigastric hernias, calling attention to the clinical syndrome of duodenal ulcer that may accompany this condition.

Although many gastric symptoms may be present in persons who have syphilis, without any definite involvement of the stomach, in my patient there was definite evidence of the presence of tabes dorsalis. The knee jerks were markedly diminished; there was an Argyll Robertson pupil in the left eye, and the blood and spinal fluid both showed a positive Wassermann reaction. This patient had attacks of epigastric pain from two to three hours after meals, not very severe in nature, and shooting around the upper abdomen. These attacks occurred over a period of from two to three months. The mild attacks, the periodicity and the relief after alkali, all suggested duodenal ulcer. The negative roentgenograms after two examinations excluded this diagnosis, and I felt that the clinical picture was due to syphilis and not to a duodenal ulcer, accompanying a tabes dorsalis. Pylorospasm was present, but not very marked; gastric secretion was increased, but an achlorhydria persisted during the entire two and one-half hours of a fractional gastric examination. Both the tonus and peristalsis were decreased.

Eustermann [35] has pointed out interesting clinical phases associated with gastric syphilis.

Of the three patients in whom a duodenal ulcer symptom complex was associated with postoperative adhesions, all gave a history of an operation for chronic appendicitis, and a persistence of the symptoms that existed before the operation. Pain in the right part of the lower abdomen at indefinite periods was associated with upper abdominal symptoms, occurring from two to three hours after meals. All showed a decrease in acidity; pylorospasm was present with decrease in peristaltic activity, normal tonus, and decreased intestinal motility. The three patients were females, whose symptoms had been present from six months to four years, with periodic remissions.

Two female patients who presented a history suggestive of duodenal ulcer had symptoms of disturbances of the colon. In one patient, there was a low-grade, nonspecific ulcerative colitis, and the other gave a history of frequent bowel movements alternating with constipation, but always associated with varying degrees of mucus in the stool. Pylorospasm was present in the patient who had the low-grade ulcerative infection of the colon. Both showed a decrease in acidity with normal secretory function. In both, tonus and peristalsis were increased, there was no six hour gastric residue, and intestinal hypermotility was present.

Other conditions have been described as presenting a symptom complex of duodenal ulcer. Moynihan [36] calls attention to the presence of a gastric ulcer close to the pylorus, or even distinctly removed, which might simulate duodenal ulcer. Ryle mentions this syndrome produced by lesser curvature ulcers, and states that "even worry and overwork at times constituted adequate simulations" to the production of symptoms suggesting ulcer of the duodenum.

ROENTGEN-RAY EXAMINATION

Special consideration is given to a brief survey of our roentgen-ray examinations, since it is the most important single laboratory method of negating the

29. Brathwaite, L. F.: Brit. J. Surg. **11**: 7-26 (July) 1923.
30. Deaver, J. B.: Relationship of Appendicitis to Upper Abdominal Disease, Pennsylvania M. J. **26**: 321 (Feb.) 1923.
31. Heyd, C. G.: Mimicry of Gastroduodenal Ulceration by Disease of the Appendix, Tr. Am. Gastro-Enterological A., 1924, pp. 134-145.
32. Gray, Irving: (Left) Shoulder Pain of Phrenic Origin, Am. J. M. Sc. **170**: 894 (Dec.) 1925.
33. Hurst, A. F.: Sphincters of the Alimentary Canal and Their Clinical Significance, read before the Manchester Medical Society, Oct. 8, 1924.
34. Friedenwald, Julius; and Morrison, T. H.: Epigastric Hernias, J. A. M. A. **87**: 1466 (Oct. 30) 1926.
35. Eustermann, G. B.: Collected Papers of the Mayo Clinic **7**: 174, 1915.
36. Moynihan, B. G. A.: M. Record **99**: 903 (May 28) 1921.

presence of duodenal ulcer. While, not infrequently, an ulcer of the duodenum, particularly when located in the second portion, may escape detection by even the keenest observer, the absence of positive results after two examinations may be taken as sufficient evidence of the absence of ulcer, particularly when symptoms have existed for months and even years.

To Cole,[37] who has greatly advanced the roentgenographic conception of ulcer of the duodenum, and to Carman,[38] Holzknecht [39] and Haudek [40] we owe a great deal for their work in simplifying the diagnosis.

The roentgenographic manifestations in duodenal ulcer are usually classified as direct or indirect. The most important direct sign is the niche. Of the other direct roentgenologic signs, in their order of importance may be mentioned the Cole defect (deformity of the duodenal contour); bulbous pouch or diverticulum; bulbar retraction; localized pressure point; dilatation of the cap, and phthisis bulbi.

Of the indirect roentgen-ray signs associated with duodenal ulcer may be mentioned hyperperistalsis; hypertonicity; dextroposition of pylorus and duodenum; pyloric insufficiency; rapid emptying of the stomach, and a small six hour residue (paradoxical residue-Haudek); hypermotility through the small intestine and colon; hypersecretion (Schlesinger); gastrospasm; toothlike contractions on the greater curvature, and "cascade" stomach (Barclay's [41] cup and spill stomach).

TABLE 4.—*Roentgen-Ray Observations*

Order of Frequency	Group	Pylorospasm	Tonus			Peristalsis			Six Hour Residue	Colonic Motility
			Normal	Increase	Decrease	Normal	Increase	Decrease		
1	Tobacco smoking.....	90	18	52	30	5	65	30	0	15
2	Chronic gallbladder disease (with and without stones)..	82	50	25	25	23	32	45	0	5
3	Constitutional conditions....	75	55	23	22	35	40	25	14	25
4	Chronic appendicitis.....	71	32	68	0	14	86	0	0	14
5	Miscellaneous:									
	(*a*) Postoperative adhesions	100	100	..	..	..	..	100	0	0
	(*b*) Colon disturbances.....	50	..	100	..	..	100	..	0	0
	(*c*) Epigastric hernia.....	100	..	100	..	..	100	..	0	0
	(*d*) Syphilis (tabes dorsalis)	100	..	..	100	..	..	100	0	0

This classification of direct and indirect roentgenologic signs of duodenal ulcer mentioned by Held and Gray were all carefully investigated in the study of the cases reported in this series.

In none of the patients were there any evidences of direct signs. Of the indirect roentgenographic signs, hyperperistalsis was present in 53 per cent of the cases, hypertonicity in 46 per cent, and pylorospasm in 86 per cent. Gastric residue was present in 2 per cent of the cases, and intestinal hypermotility in 7 per cent.

Akerlund [42] states that occasionally not even a surgeon, a pathologist or a roentgenologist can conclude that an ulcer exists until the duodenum is opened.

Eastman [43] uses the term ulcerative duodenitis for those cases in which there are roentgen-ray manifestations of some irregularity of the lesser curvature of the duodenum, which are more or less constant, with the presence of minute craters approximating the size of a match head.

Any case suggestive in any way of a lesion similar to the one described by Eastman, or suggesting the possibility of a duodenal ulcer was excluded.

PYLOROSPASM

The great frequency with which pylorospasm was present in this series of cases, evidenced not only by the clinical symptom complex but also by the roentgenologic observations, is deserving of comment. There was no relationship between the spasm of the pylorus and gastric secretion and gastric acidity, or associated roentgenologic gastric observations, such as changes in tone or peristalsis. The phenomenon of pylorospasm seems to be independent of any motor or chemical change, and, as Hughson [44] states, "no part of the alimentary canal is so subject to derangement of normal function . . . and probably no portion of the digestive tube bears so close a relation to diseases of the stomach and duodenum as does the pylorus itself."

The spasmodic contraction of the pyloric ring, the pyloric canal or both either may be of short duration or may last a long time and appear to be almost continuous, according to the definition of Haynes. He states that the chief symptoms are pain in the epigastrium, eructation of gas, late pain or hunger pain relieved by the ingestion of food.

Held and Roemer [45] consider the intragastric and extragastric factors, and feel that the latter are the more frequent cause of pylorospasm.

A. G. Brown [46] lists eleven causes for spasm, and includes among them toxic disturbances, bacterial diseases and diseases of the central nervous system.

Finney and Friedenwald [47] divide the causes of pylorospasm into the neurotic, the irritative and the reflex. They believe the neurotic is the most unusual cause of pylorospasm, while the reflex is the most frequent.

Raymond [48] mentions the true reflex type of pylorospasm associated with diseases of all the intra-abdominal organs, and also speaks of a group of "spasmophils" who frequently present this distressing symptom.

Reflex stimuli from the nervous system may bring about an irritability of the pylorus, and McLean speaks of hunger pain as a manifestation of hyperacidity, although the absence of normal gastric juice, as pointed out by Friedenwald and Morrison [49] is not necessarily associated with any manifestations so far as the patient is concerned.

Carlson [50] does not believe that the influence of acid is responsible for the pylorospasm, and he points out that the vagi and the splanchnic both contain motor and inhibitory fibers. Hunger pain is usually attributed to an active gastric peristalsis. It is difficult to explain why food and alkali should relieve this pain, if due to motor activity alone, for, as Palmer [51] has shown, it is not the muscular activity but the acidity that is responsible for this pain. He feels that hydrochloric acid is

37. Cole, L. G.: Diagnosis of Duodenal Ulcer by Means of Serial Radiography, Lancet **2**: 494, 1913.
38. Carman, R. D.: Roentgen Diagnosis of Disease of Alimentary Canal, ed. 2, Philadelphia, W. B. Saunders Company, 1920.
39. Holzknecht, G., and Luger, A.: Zur Pathologie und Diagnostik des Gastrospasmus, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **26**: 669-695, 1913.
40. Haudek, M.: München. med. Wchnschr., 1910, number 30.
41. Barclay, A. E.: Brit. M. J., 1910, number 2.
42. Akerlund, A.: Roentgenologische Studien über den Bulbus Duodeni, Acta radiol. supplement 1, 1921.
43. Eastman, C.: Gastro-Intestinal Infection, Its Roentgen Manifestations, Brit. J. Radiol. Bir. Sec., March, 1926, pp. 93-100.
44. Hughson, Walter: Reflex Spasm of the Pylorus, Arch. Surg. **11**: 136 (July) 1925.
45. Held, I. W., and Roemer, J.: Gastrospasm, Am. J. M. Sc. **164**: 188 (Aug.) 1922.
46. Brown, A. G.: Diagnosis of Certain Stomach Cases, Sc. M. J. **7**: 617, 1914.
47. Finney, J. M., and Friedwald, Julius: Pylorospasm in Adults, Am. J. M. Sc. **162**: 469 (Oct.) 1921.
48. Raymond, M. F.: Le spasm du pylore (pylorospasm), Presse méd. **28**: 273, 1920.
49. Friedenwald, Julius; and Morrison, T. H.: Clinical Significance of Achylia Gastrica, Ann. Clin. Med. **5**: 319-326 (Oct.) 1926.
50. Carlson, A. J.: The Control of Hunger in Health and Disease, Chicago, University of Chicago Press, 1916.
51. Palmer, W. L.: Mechanism of Pain in Gastric and Duodenal Ulcer: III. Rôle of Peristalsis and Spasm, Arch. Int. Med. **39**: 109 (Jan.) 1927.

the normal stimulus to the pain-producing mechanism of the sensitive peptic ulcer. He states that true achlorhydria occurs rarely, although no evidence has been found to support the view that increased acid may cause a typical ulcer pain in the absence of a definite lesion of the gastric or duodenal mucosa.

The pyloric syndrome described by Souppault [52] resembles very closely the symptom complex of duodenal ulcer as defined by Moynihan. At times, this pyloric syndrome is not associated with the presence of an ulcer and appears to be the clinical expression of an irritable condition of the pylorus associated with the symptomatology of a duodenal ulcer. Saloz and Maupert [53] mention the importance of pyloric spasm not only in relation to the symptomatology but also in the development of an ulcer.

Whether or not any of these patients will develop an ulcer cannot be foretold, for undoubtedly some of the cases with persistent pylorospasm may develop what Schnitzler [54] first called attention to; namely, an erosion or fissure of the sphincter pylori.

That the clinical symptom complex is no proof either of the existence of an ulcer or of its duration has already been noted. Even in the presence of duodenal ulceration, complicated by hemorrhage, Crohn and his co-workers [55] have shown that the ulceration seems, in these cases, to heal most readily. Pathologic and roentgen-ray evidence indicate that healing in the intermittent stage does progress.

In the series of cases presented here, all the patients had symptoms lasting on the average for three or four years. It is known, from this work of Crohn's, that an ulcer may heal rapidly, and the assumption might be made that some of my patients developed ulcers and that they healed in a relatively short time, only to recur again. At least two roentgen-ray examinations were made, always in the active stage, and they always failed to reveal even a suggestive evidence of ulcer.

SUMMARY

1. In a series of 250 patients who presented the clinical symptom complex of duodenal ulcer, one third were found to have reflex stimuli responsible for the symptomatology.

2. Tobacco smoking was the most frequent cause of this train of symptoms; next were chronic infection of the gallbladder (with or without stones), the constitutional factor, and chronic appendicitis.

3. Pylorospasm was present in 81 per cent of the cases.

4. This syndrome occurred independent of gastric acid values, and was present in several cases showing achylia.

5. The majority of the patients were men.

6. There was no definite relation between the activity of gastric peristalsis and the acid content.

From this study I feel that while careful history taking is a most important adjunct in arriving at a proper diagnosis, particularly in diseases of the gastrointestinal tract, greater care and caution must be exercised in the interpretation of symptoms, particularly in this era of surgery.

No matter how striking the symptom complex of duodenal ulcer may be, the diagnosis must be corroborated by fluoroscopic and roentgen-ray examination. Removal of the foci of infection, and treatment of the underlying cause, responsible for the reflex gastric phenomena, will cure a great many of their gastric complaints, and the time will then be reached when surgeons will operate not for symptoms but for disease.

112 Clinton Street.

52. Souppault, C.: Bull. et mem. Soc. de thérap., 1901, p. 448.
53. Saloz, C., and Maupert, G. C.: Arch. d. mal. de l'app. digestif 13: 97 (Feb.) 1923.
54. Schnitzler, R.: Wien. Wchnschr., 1891.
55. Crohn, B. B.; Weiskopf, Samuel, and Aschner, P. W.: Observations on the Life Cycle of Peptic Ulcer, Arch. Int. Med. 35: 405-422 (April) 1925.

ABSTRACT OF DISCUSSION

DR. JULIUS FRIEDENWALD, Baltimore: Dr. Gray has clearly pointed out a number of conditions which may give rise to ulcer-like symptoms and the importance of not relying on these symptoms alone as positive evidence of ulceration. In my experience, the history suggesting duodenal ulcer may be produced most frequently by (1) gastric neuroses, especially vagotonia as is observed in pylorospasm or hyperchlorhydria; (2) chronic cholecystitis or chronic appendicitis. There are other causes, as has been pointed out by Dr. Gray. The diagnosis can ordinarily be made by means of a thorough physical and laboratory investigation. I do not believe that a negative roentgen-ray examination always excludes ulcer, for it may be situated on the anterior or posterior wall of the stomach and not show in the plates. There are cases with ulcer-like symptoms in which no abnormality is found in the stomach. The appendix is removed and yet these patients often continue to complain of their old symptoms. Not infrequently the ulcer in these cases is of the mucous type, escaping detection at operation, unless the stomach is incised. Dr. Gray calls attention to epigastric hernia as a cause for a history suggesting ulcer. This occurred in seven of sixty-five cases reported last year. The important lesson pointed out by Dr. Gray is that we should not base a diagnosis of ulcer on the symptoms alone.

DR. A. F. R. ANDRESEN, Brooklyn: I agree with Dr. Gray that there are patients who have symptoms simulating ulcer and who really do not show evidences of ulcer, but I certainly do not believe that one third of all patients with ulcer symptoms do not have ulcer. Such a large percentage means either an incomplete or an inconclusive history or a careless or incomplete study of cases. In the case of gallbladder disease and chronic appendicitis associated with ulcer symptoms, I feel that the very frequent association of two or all three of these conditions in what has been called a "chronic gastro-intestinal infection" would make it very difficult to exclude ulcer absolutely as an accompaniment of the other two, even though an actual ulcer crater was not shown by the roentgen ray. Duodenitis and duodenal diverticulum, also often difficult to differentiate from ulcer, may give ulcer symptoms. As for roentgen-ray evidence, fluoroscopy, which seems to have constituted Dr. Gray's roentgen-ray study, so often fails to disclose definite gastric or duodenal ulcer that I do not consider it of any diagnostic importance when an ulcer is not seen by this method. Multiple films, in various positions, will usually show an ulcer, but even these may be confusing in the presence of deformities caused by periduodenal or peripyloric adhesions. In fractional gastric analysis, no "characteristic curve of acidity" for ulcer has ever been demonstrated. In duodenal ulcer, the finding of blood in gastric contents for the first time when regurgitation of duodenal contents into the stomach can be demonstrated by the presence of bile is almost pathognomonic of duodenal ulcer and will often help in diagnosing ulcer in the presence of duodenal deformities from adhesions. As for "nicotinism," no evidence is available that the sour regurgitation in some patients using tobacco has anything to do with an actual nicotine poisoning. It is probably merely a manifestation of a sensitiveness to tobacco smoke on the part of the individual. In epigastric hernia the history of relief of symptoms by posture or support should help to exclude ulcer, although I have frequently seen both ulcer and epigastric hernia in the same person. On the whole, I feel that a history of typical hunger pain, relieved by food, is often of more diagnostic value in peptic ulcer than any laboratory observations.

DR. C. R. JONES, Pittsburgh: When I first read Moynihan's work I was inclined to doubt the high percentage of positive diagnoses that he was willing to make from the hunger pain

alone. The longer I study cases of this type the more I respect Moynihan's work. I feel that we frequently overlook the erosive type of ulcer that occurs both in the stomach and in the duodenum. The frequent statement that at operation no ulcer was found is usually not accompanied by any statement as to whether the duodenum or the stomach was examined. A finding of cholecystitis or gallstones, together with appendicitis, does not clear the duodenum of suspicion. I have in mind a patient who was operated on six weeks after an attack of acute tonsillitis for an inflammation of the appendix, an inflammation of the gallbladder and a duodenal ulcer, apparently a focal infection.

DR. J. J. GILBRIDE, Philadelphia: I have often listened to the reading of histories with a diagnosis of duodenal ulcer, and yet these histories did not present anything that would suggest a duodenal ulcer. Efforts have been made from time to time to introduce a symptomatology for duodenal ulcer which has been wholly at variance with the real symptomatology of this disease. Hence the large number of wrong diagnoses. I believe that duodenal ulcer presents the most clear-cut symptomatology of practically any of the gastro-intestinal diseases. The symptomatology is definite and constant, and if one takes a careful history, one can make a correct diagnosis in the great majority of cases. The physical examination in patients with this disease does not reveal anything at all. Therefore, the variability and indefiniteness of symptoms together with evidence of disease of other organs would seem to rule out the diagnosis of duodenal ulcer. I think that we are agreed that it is too often expected of the roentgenologist to make the diagnosis of gastro-intestinal disease for us. The patient is sent to the roentgenologist and he is supposed to make the decision. On the other hand, I do not believe that men with experience will accept a negative report for a duodenal ulcer—in all cases—from the roentgenologist as final.

DR. FRANK SMITHIES, Chicago: There is an embryologic basis on which explanation of extragastric lesions causing gastric responses may be made. Originally, the alimentary tract is a straight tube; this develops into esophagus, midgut and hindgut. When the midgut differentiates, the liver and biliary tract bud off near the stomach pouch and, embryologically, remain as neurologically and myogenically closely related. Similarly, the appendix is an outpouching of the gut, and it maintains its close neurologic and myogenic relations. "Irritation," by disease or otherwise, of the biliary tract or the appendix zone, affect the stomach's function, from the motility standpoint, and, perhaps, also from the secretory, in accordance with the ordinary "alimentary tract reflex"—namely, contraction above the point of irritation and relaxation below. The response varies according to the degree, extent and time of maintenance of the "irritation." Thus, a stimulus in the biliary tract results in contraction ("spasm") of the cephalad, highly differentiated muscle bundles embryologically above it; namely, the pyloric sphincter or the stomach. Hence, gallbladder or biliary tract diseases early manifest themselves by gastric symptoms, which symptoms, carelessly, may be assumed to be those from gastric or duodenal ulcer. Similarly, appendix zone "irritation" is followed by pyloric or gastric spasms and constant or intermittent gastric symptoms. In both biliary tract and appendix zone "irritation," the "relaxation" below (embryologically considered) is manifested by colon dysfunction, not rarely diarrhea or the statsis of atony. "Food relief" may be exhibited in gastric spasm due to extragastric lesions, because food ingestion has the tendency to compel the stomach to return to its normal peristaltic rhythm. However, the "food relief" in ailments of this nature is rarely, if ever, so constantly exhibited or so complete as in instances in which peptic ulcer exists.

DR. IRVING GRAY, Brooklyn: Had the time permitted, a fuller discussion of pylorospasm and its relation to the duodenal ulcer symptom complex would have been made. The work of Dr. Friedenwald is of especial interest in the study of pylorospasm. If the mucosa of the duodenum alone is involved, I quite agree that roentgen-ray examination will not show such a lesion. The patients whom we had under observation were examined in the active stage after symptoms. The absence of any direct signs and the absence of sufficient indirect roentgen-ray signs we felt was evidence sufficient to exclude the presence of an ulcer. In answer to Dr. Andresen, I might say that in none of our patients did we find blood in the gastric contents. I feel as Dr. Andresen does that these patients are susceptible to tobacco, and the reason for developing a train of symptoms which suggest duodenal ulcer is still unsettled. Whether there is a direct stimulation of the vagus nerve by nicotine or whether it is a general action due to the absorption of nicotine cannot with certainty be stated. Dr. Jones spoke of the erosion type of duodenal ulcer and also stated that, unless the duodenum is open at the time of operation, the ulcer may be overlooked. I quite agree with him. The so-called symptom complex of duodenal ulcer is not pathognomonic for ulcer, for there is a group of patients who have the clinical history but do not present positive signs on examination. Further, we have reports from the pathologists who find duodenal ulcers at the postmortem table, and no evidence of clinical history suggesting such a lesion, and furthermore we know of surgeons who have operated for the presumed presence of a duodenal ulcer but found no ulcer. In consideration of these facts, it is reasonable to assume that the symptom complex of duodenal ulcer may be suggestive of a lesion in the duodenum but certainly not conclusive proof. Dr. Gilbride spoke of the clear-cut symptom complex in all duodenal ulcers. I have a patient at present who has a definite cancer in the pyloric region of the stomach, who presents the most beautiful and vivid illustration of a duodenal ulcer symptom complex I have ever seen. Roentgen-ray examination of the duodenum shows a normal state of affairs.

THE HEMATOPOIETIC EFFECTS OF INTRAVENOUSLY INJECTED NUCLEIC ACIDS

FURTHER OBSERVATIONS OF RESULTS IN NORMAL AND SPLENECTOMIZED RABBITS AND IN HUMAN PATIENTS *

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Intravenous administration of the sodium salts of nucleic acids obtained from the blood cells of the fowl gave such interesting results on animals [1] that it was thought justifiable to employ the method, with extreme caution, on human patients suffering from anemia. Accordingly, nucleic acids obtained by the Kessel-Neumann method, as previously described, were introduced intravenously in dosages of from 0.25 to 1 Gm., dissolved in physiologic sodium chloride solution, in a series of eleven patients. These patients were under hospital treatment and had been diagnosticated as secondary and pernicious anemia cases, with various associated complications. The smallest dose of sodium nucleate administered, 0.25 Gm., was approximately the same as had been given to rabbits weighing from 2.3 to 2.5 Kg., and the largest dose (one case) was four times this amount. There was therefore a great disparity between the body weights of the rabbits and of the patients treated and the relative amounts of nucleic acid salts administered. In interpreting the results, which should be regarded as qualitative only, this variance must be borne in mind.

* From the Departments of Anatomy and Medicine, University of Oregon Medical School.

1. Larsell, O.; Nokes, H. T., and Phillips, B. I.: Hemopoietic Effect in Rabbits of Intravenous Injection of Cells, Nuclei and Nucleic Acid from Blood of Fowls, Arch. Path. and Lab. Med. 2: 698-703 (Nov.) 1926.

Rabbits had not shown symptoms of distress following the injections. Most of the patients, however, complained of chill and other transitory symptoms. Care had been observed to obtain the sodium nucleate as free as possible from protein, so that there appeared little likelihood that these symptoms could be due to anything in the nature of anaphylactoid shock. Nevertheless, as a matter of precaution, a series of rabbits was given repeated intravenous doses of 0.3 Gm. of the sodium nucleate, dissolved in 10 cc. of 0.9 per cent sodium chloride solution. Five of such doses were given to each rabbit at intervals of from three to eight days, the last dose eight days after the fourth one. No symptoms were observed, except an occasional more rapid respiration and heart action, which continued for from ten to fifteen minutes after injection. This effect, however, was not related to the sequence of the injection, sometimes appearing after the first treatment, sometimes after one of the subsequent injections. The animals frequently resumed feeding as soon as released. The blood cell count on these rabbits showed the same general results as previously reported, but the subsequent doses after the first did not materially alter the blood picture. Despite the marked diurnal variation in erythrocyte count reported by Bushnell and Bangs,[2] which is much greater than was found by Selling[3] in rabbits, we have every reason to believe that the progressive increase in the number of erythrocytes in our rabbits was due to treatment with sodium nucleate.

In order to determine whether or not the spleen is a factor in the problem, four rabbits, which had been subjected to splenectomy twelve months previously for this purpose, and whose blood had become stabilized after this operation, as shown by repeated counts before administration of the sodium nucleate, were each injected with 0.364 Gm. of the substance, dissolved in salt solution. The immediate effects of the injection, as shown in table 1, which represents a typical case, were striking. In each case there occurred a marked depression. In three of the rabbits this symptom came on in from eight to ten minutes, but in the fourth (rabbit II-23) it was not so severe until two hours after injection. It is of interest to note that necropsy

TABLE 1.—*Effect of Sodium Nucleate Intravenously Administered Into Splenectomized Rabbits*

	Splenectomized rabbit II-22			
Date	Erythrocyte Count	Leukocyte Count	Injection of Sodium Nucleate	Comment
11/16/26	4,900,000*	11,100*	0.364 Gm.	Marked shock 10 minutes after injection; respiration labored and rapid; rabbit appeared as if stunned; responded but slightly to stimulus; one hour later, animal lay on belly with legs spread out; marked dyspnea, with cough and wheezing; recovered by 12/15/26
11/17/26	4,250,000*	10,400*		
12/11/26	4,520,000*	7,400*		
12/12/26	4,640,000	31,900		
12/15/26	5,620,000	10,600		
12/19/26	5,498,000	10,600		

* Preinjection counts.

of the latter animal brought to light an accessory spleen nearly one third the size of the normal organ. There was extreme dyspnea, with coughing and sneezing, in all the animals of the series, the heart action became rapid and weak, and the animals became apathetic. They remained sick for three or four days, after which time they recovered. In the meantime, two of them showed a considerable increase in blood count. The other two showed some increase, but not enough to be considered significant in rabbits. Similar results, as respects reaction, had been previously observed in splenectomized rabbits when injected with whole washed blood cells from the fowl, but the reaction came somewhat later after administration. In one of these animals injected with blood cells, a much milder reaction than ordinary had been noted, similar to that described for rabbit II-23, above, and again necropsy had brought to light a large accessory spleen.

TABLE 2.—*Effect of Sodium Nucleate Intravenously Administered in Human Cases of Anemia*

Date	Erythrocyte Count	Leukocyte Count	Hb. %	Injection of Sodium Nucleate	Comment
Case 7.—Woman, aged 52; pernicious anemia, 3 years; chronic cholecystitis; cholecystectomy					
11/ 1/26	3,370,000*	5,250	84	0.5 Gm.	Severe chill during first hour; increase of 25.9 per cent erythrocytes within 6 days after treatment with sodium nucleate, accompanied by 6 per cent increase in hemoglobin
11/ 3/26	3,820,000 (1st hr.)	.....	86		
	3,860,000 (2d hr.)	.....	87		
	3,710,000 (3d hr.)	5,900	86		
11/ 4/26	3,740,000	5,500	88		
11/ 5/26	3,980,000	.....	90		
11/ 6/26	4,130,000	.....	93		
11/ 8/26	4,240,000	.....	93		
11/10/26	4,240,000	.....	93		
Case 4.—Man, aged 68; pernicious anemia, 3 years; cholecystectomy, 2/16/25; chronic cholecystitis; splenectomy, 8/10/25					
10/21/26	2,210,000*	8,950	57	1 Gm.	Weakness, nausea, chill which continued 2 days after sodium nucleate injection; erythrocyte count dropped to 1,990,000 in 3 hours after injection of sodium nucleate, but increased 5.8 per cent above the preinjection level in 6 days
10/27/26	2,230,000 (1st hr.)	7,200	58		
	2,010,000 (2d hr.)	7,100	52		
	1,990,000 (3d hr.)	8,000	50		
10/28/26	2,100,000	6,800	51		
10/29/26	1,950,000	6,350	49		
10/30/26	2,110,000	6,050	52		
11/ 2/26	2,300,000	6,300	56		
11/ 9/26	2,280,000	.....	55		
11/16/26	2,250,000	.....	57		
Case 10.—Woman, aged 62; secondary anemia, from 6 to 7 months; cardiovascular disease; hypertension; chronic cholecystitis					
10/18/26	3,350,000*	4,600	65	0.25 Gm.	No immediate reaction; erythrocyte count increased 12.8 per cent in 7 days and hemoglobin increased 8 per cent; in 11 days the maximum increases of 24.5 per cent erythrocytes and 20 per cent hemoglobin were observed; there was a decrease following this to slightly below the preinjection level 22 days after the sodium nucleate was given
	3,360,000 (1st hr.)	.....	65		
	3,350,000 (2d hr.)	.....	64		
	3,350,000 (3d hr.)	.....	64		
10/19/26	3,390,000	.....	66		
10/20/26	3,510,000	.....	67		
10/22/26	3,650,000	.....	68		
10/25/26	3,800,000	.....	73		
10/29/26	4,170,000	.....	78		
11/ 8/26	3,650,000	.....	76		
11/10/26	3,280,000	.....	73	0.25 Gm.	Second injection was followed by slight chill; an increase of 5.8 per cent erythrocytes and 4 per cent hemoglobin in 7 days, further increase to 13.5 per cent in erythrocytes and 5 per cent hemoglobin in 36 days, followed the second injection
11/12/26	3,400,000	.....	71		
11/27/26	3,470,000	.....	74		
12/16/26	3,820,000	.....	78		
12/29/26	3,250,000	.....	75		

* Preinjection counts.

Obviously, the spleen plays an important rôle in caring for the material introduced by us into the blood stream. In the case of the foreign whole blood cells this rôle can be explained partly in terms of storage, for the foreign cells can be seen in sections of the spleens of normal animals, in large numbers soon after injection. It is not so clear how the dissolved sodium nucleate is controlled. Either the spleen takes up the foreign material, or it produces some substance which finds its way into the blood stream and counteracts the nucleic acid salts. In some manner which we cannot yet explain, one result is hematopoietic stimulation.

Turning now to consideration of the human cases (table 2), we should first state that these patients were

2. Bushnell, L. D., and Bangs, Edna F.: J. Infect. Dis. **39**: 291 (Oct.) 1926.

3. Selling, L.: Benzol as a Leucocytin, Johns Hopkins Hosp. Rep., Monographs, n. s. number II, 1913.

chosen because of the previous steadfastness of their anemia. No improvement had been noted from rest and other hospital treatment. The sodium nucleate injections were the only factors, so far as could be determined, which could have had any influence. Several preliminary blood counts were made at intervals of from one to twelve days (in one case, twenty-seven days) on each patient. No variation was found comparable to that noted after administration of the sodium nucleate. In most cases the variation before treatment was less than 3 per cent, in one case about 5 per cent. Following injections of the nucleic acid compound, there was by the sixth to the twelfth day, in eight of ten cases in which a count was obtained during this period, an increase of from 1.8 to 25.9 per cent of erythrocytes above the preinjection counts. The blood of one of the remaining patients, which, however, showed a decrease, was not counted until the fifteenth day. The other case was negative at six days, and the patient continued to lose rather than gain.

The maximum gain in the blood cell count varied in time between the first hour after injection to the twenty-seventh day. If two cases which showed the maximum increase within three hours are set aside as possibly due to release of stored cells from the spleen, the remaining eight cases showed the greatest increase in count between the sixth and the twenty-seventh days after injection, and one of the three omitted cases (case 10, table 2) showed an increase of 12.8 per cent, although not the maximum for this individual, on the seventh day.

Case 4 (table 2) is of particular interest when compared with our splenectomized rabbits. This patient had been subjected to splenectomy thirteen and one-half months prior to the treatment here reported. He was given 1 Gm. of sodium nucleate intravenously, and showed symptoms of distress, with weakness, nausea, chills, etc., that continued for two days. These symptoms were much more severe than in any of the other patients, and continued, as stated, for two days instead of a few hours. If due allowance is made for the larger dose, although two of the other patients had received 0.75 Gm. without corresponding symptoms, it appears likely that the absence of the spleen played some part in the severity and duration of the symptoms, as was true with the splenectomized rabbits.

The cases were followed by repeated counts of the erythrocytes for periods varying between six and eighty-five days after injection, and showed a return in most instances to near the preinjection number of red corpuscles. The hemoglobin percentage was also noted, as is shown in the illustrative cases in table 2. This showed an increase also in the majority of the cases, but not in proportion to the increase of erythrocytes. It varied in increase between 2 and 20 per cent during the first six to twelve days after injection of the sodium nucleate, with only a relatively slight average gain after this time period. The final hemoglobin percentage, as compared with that before administration of the sodium nucleate, was more variable in its departure from the preinjection level than was the erythrocyte count, but in general also approached the original estimation. If the temporary increase in erythrocytes and in hemoglobin index can be attributed to the sodium nucleate administered, and this interpretation appears to be justified, although the doses were relatively small, the beneficial effect was soon lost, either by consumption of the injected substance or by its neutralization in some manner.

The duration in time of the high count in our patients does not correspond with that previously reported in the normal, healthy rabbits, although this should not occasion surprise. It appears to conform more closely to the results obtained by Leake and Evans [4] as a result of administering spleen and bone marrow extracts, and by Minot and Murphy,[5] and Murphy, Monroe and Fitz [6] through liver feeding. It should be recalled that these several organs are rich in nuclei and therefore in nucleic acids, and it may prove true that the beneficial effects of treatment with these organs is due, in part at least, to their large nuclear content and correspondingly large amount of nucleic acids and other nuclear substances. Experiments on animals in which sodium nucleate and nucleoproteins obtained from liver have been administered separately and in combination, both intravenously and by mouth, have progressed to the stage at which we can to a large extent confirm this interpretation.

The beneficial results of administering these compounds appear to cease when treatment is discontinued. The one case in our human series (case 10, table 2) in which a second injection of sodium nucleate was given showed a second increase of the erythrocyte count and hemoglobin percentage after they had fallen, within twenty-two days after the first dose, below the original preinjection level. The second dose, of like amount as the first, was followed by a second rise in blood count, which reached, in seven days after the second injection, a maximum of 5.8 per cent above the second preinjection level. This was followed by a return a second time, in forty-nine days, to approximately the second preinjection level. These facts are merely suggestive. They point to the interpretation that in such a patient, in whom the destructive processes were probably not greatly increased during the period of observation, the effect of the treatment was in a manner measured, as suggested by the fact that the maximal increase following each injection took place in seven days, and that there was a return to near the preinjection level after each treatment.

SUMMARY AND CONCLUSIONS

We may summarize and draw tentative conclusions from our work thus far as follows:

1. Washed nuclei from the red blood cells of the fowl, injected into normal rabbits, intravenously, produce marked hematopoietic stimulation.

2. The cytoplasm of the red blood cells of the fowl from which the nuclei have been removed, i. e., that part of the cell containing the iron element of the hemoglobin, does not produce hematopoietic stimulation. This is also true of the corresponding part of the erythrocytes from the horse and the dog, when injected into rabbits.

3. Nucleic acids (and nucleoproteins?) obtained from the washed nuclei of the red blood cells of the fowl, injected intravenously into normal rabbits and into anemic human patients, produce a hematopoietic stimulation similar to that resulting from the injection of the nuclei themselves.

4. Successive intravenous injections of the sodium salts of nucleic acids do not appear to produce deleterious effects in normal rabbits, nor did they in the

4. Leake, C. D., and Evans, J. S.: Bone Marrow and Spleen in the Treatment of Anemia, Am. J. M. Sc. **168**: 819 (Dec.) 1924.

5. Minot, G. R., and Murphy, W. P.: Treatment of Pernicious Anemia by a Special Diet, J. A. M. A. **87**: 470-476 (Aug. 14) 1926.

6. Murphy, W. P.; Monroe, R. T., and Fitz, Reginald: Changes in Composition of the Blood in Pernicious Anemia Treated by a Diet Rich in Liver, J. A. M. A. **88**: 1211-1214 (April 16) 1927.

one human patient to whom a second treatment was given.

5. Splenectomized rabbits, on the other hand, show marked depression and shock from a single injection of approximately like amounts, and this depression is of several days' duration. One human patient who had been splenectomized more than a year prior to the treatment showed very similar effects, also lasting several days. It appears, therefore, that the spleen has a part in assimilating the injected nucleic acids, but how this is done is not clear.

6. Nucleic acids, although administered in small amounts, appear to serve as hematopoietic stimulants in anemic human beings as well as in normal rabbits. The effect, however, is temporary.

A MANIFESTATION OF UREMIA IN THE PHARYNX, LARYNX, TRACHEA AND BRONCHI *

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The symptomatology of uremia is so varied and so multiform that a phenomenon of the mucous membrane of the respiratory tract, such as this paper deals with, is to be expected, especially when one considers that all the excretory surfaces of the body are involved in the attempt of nature to get rid of the nitrogenous poisons thrown into the blood stream because of the inability of the kidneys to eliminate them properly.

This paper deals with a specific type of lesion which was observed in some cases of uremia or impending uremia, in the hypopharynx, larynx, trachea and bronchi. Lesions similar to those encountered in the structures just mentioned have been observed in the oral cavity and pharynx by several French authors.

Lancereaux [1] first mentioned lesions occurring in the mouth and pharynx of uremic patients under the heading of buccopharyngeal uremia. Later Barié [2] elaborated on the observations of Lancereaux and reported three cases of the so-called erythematopultaceous variety and a fourth case illustrative of the ulcerative type of lesion. These he classed as cases of uremic stomatitis. Hertz,[3] some years later, reported two cases and considered the clinical phases of these lesions.

The following summary is taken from the description which Barié gave of the pultaceous and ulcerative types of lesion occurring in the mouth and pharynx of uremic patients. It is given in detail because the lesions described coincide with the type of lesion which I have observed in the other structures of the respiratory tract. In the former the buccal mucous membrane is rosy red, the tongue is enlarged and covered with a grayish sticky coating, from which there comes a slight odor. The coating can be lifted off and is found to have a pulpy, doughy feel between the fingers. The gums are covered with a uniform grayish coating, which is abundant, and in some cases several millimeters thick. The coating may be so marked as to cause pharyngeal obstruction. The patient is sometimes seen trying to remove this obstructive coating with his fingers. Barié advocates picking it off or scraping it away. On removal of the coating the mucosa is found to be dry but not ulcerated, and is a brilliant red. The coating reforms almost immediately after its removal. Subjectively there is dryness and a feeling of heat. There is some salivation. The saliva is glazed and sticky, and mixes with other secretion. Barié speaks of the buccopharyngeal lesion as a manifestation of uremia in the digestive tract. The second, or ulcerative, type of stomatitis is more rare than that just described. Barié believes that this form is superimposed on a previously existing pultaceous lesion. In his cases there was abundant saliva and a thick gray coating on a mucosa of increased redness. Three ulcers were seen in the case he reported. The ulcers are red and painful to touch; they may be of any size or form, and may be superficial or deep. Mastication may be painful. Recovery brings with it a resultant cicatrization. The ulcerative type attacks the cheeks and lips but never the tongue, tonsils or pharynx.

The lesions that I have encountered in the buccal cavity have been of the pultaceous variety, and are the same as those described by Lancereaux, Barié and Hertz. In a series of 170 patients with uremia, I have encountered one with ulceration. This was a patient who introduced mercuric chloride tablets vaginally for purposes of contraception and developed suppression of the urine with supervening uremia, from which she recovered. She had a large deep ulceration of the soft palate just above the left tonsil.[4] I have not, however, encountered the ulcerative type of lesion in a true case of uremia, although I know that the lesion exists and that others have seen it.

The following case introduced this subject to me:

In September, 1924, I was called to a hospital by Dr. J. M. Mayer, to see a man, aged 50, who was suffering with a marked degree of laryngeal obstruction. The patient had been suffering with sore throat to which a physician had applied some tincture of iodine forty-eight hours before. The pharynx was uniformly reddened. By indirect examination the larynx was seen to be similarly of increased redness. Its interior was irregularly covered with a thick, grayish white membrane, which appeared to be particularly thick in the region of the false vocal cords. The membrane was stringy in some places and did not appear to be firmly adherent. Portions of this membrane could be seen moving in the glottic space with each inspiratory and expiratory effort. Examination revealed that there was no elevation of temperature, suppurative nasal condition, pronounced odor or cervical adenitis. The redness of the pharynx and larynx was uniform and suggested a systemic condition rather than a local burn. I was assured that the patient had no systemic condition. Ten cubic centimeters of sweet almond oil was introduced into the larynx with immediate beneficial effect. The patient was no longer in distress and could breathe well. As a result I expected a favorable prognosis. What could have been more disconcerting than to learn later that the patient had entered a state of coma during the night and had died twelve or fourteen hours after I had seen him. Those who saw the patient were of the opinion that he had died of uremia. Subsequent questioning of members of the family elicited the fact that he had been very sick with kidney trouble on two previous occasions.

This experience led me to look for similar lesions in cases of uremia. Six other patients with uremia were observed to have similar laryngeal lesions. The foregoing description fits all the laryngeal cases after the coating has become well established. When the coating is first making its appearance it is comparatively thin;

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* From the Department of Laryngology, Kings County Hospital, Service of Dr. Arrowsmith.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 19, 1927.

1. Lanceraux, M.: Anatomie Pathologique et Complications de l'urémie, L'union méd. **44**: 829, 865, 1887.

2. Barié, E.: De la stomatite urémique, Arch. gén. de med. **1**: 415-432, 690-702, 1889.

3. Hertz, Edgar: Les stomatites urémiques et leur diagnostic, Semaine méd. April, 1902, p. 109.

4. Rynd, C. E., and Myerson, M. C.: Mercurial Poisoning by Absorption from the Vagina, M. J. & Record **121**: 621 (May 20) 1925.

later it becomes thicker. Of interest is the fact that all the laryngeal patients complained of soreness of the throat before hoarseness and some degree of laryngeal obstruction made their appearance.

While looking for the laryngeal lesions I encountered the buccopharyngeal lesion mentioned by Barié. In addition I have found the same type of phenomenon in the hypopharynx of four patients. Two of these patients had coexistent buccopharyngeal lesions. Two of the patients with laryngeal coatings were treated by means of the bronchoscope because of their obstructive symptoms after the larynx had been cleansed of its content with oil.

Lesions Encountered in Laryngeal Cases

Case	Hypopharynx	Larynx	Trachea	Bronchi	Oral Cavity
1	•	•	•	•	•
2		•			
3		•			
4		•			
5		•			•
6	•				•
7	•				
8		•	•	•	
9		•			•
10	•				
11		•			•

Analysis: Five of the eleven cases showed oral cavity lesions. Two hypopharyngeal and four laryngeal cases did not present oral cavity lesions.

Two of the seven laryngeal cases also showed tracheobronchial lesions, but no hypopharyngeal or oral lesions.

None of the laryngeal lesions were accompanied by a coating in the hypopharynx.

Whether all patients with a laryngeal lesion also have a tracheobronchial lesion is not known; it is very likely that this is not the case. One may also speculate as to whether the hypopharyngeal cases also show involvement of the esophagus. The esophagus was not investigated in this study.

The hypopharyngeal lesion was observed with a Jackson or Mosher laryngeal speculum. Only a rapid examination could be made, as these patients were stuporous or semistuporous, and as a rule resisted being examined. The lesion observed in case 1 is the same as that seen in the other three:

CASE 1.—L. H., aged 47, who was admitted to the medical service Nov. 21, 1925, and who died within forty-eight hours, complained of weakness, loss of appetite and headache. She had been irrational for the past eight days. With the Mosher speculum a grayish white coating covering the pyriform fossae and somewhat filling them was encountered. The underlying mucosa was intensely red and dry. These patients complained of difficulty in swallowing and intense dryness. The latter symptom, however, is more a part of the general than the local condition.

The following two cases of tracheobronchial coating were seen:

CASE 2.—E. M., a youth, aged 19, admitted, Feb. 25, 1925, to the dermatologic service of Dr. Alfred Potter with a diagnosis of acne vulgaris, had been suffering with a skin condition of the chest both anteriorly and posteriorly.

A few days after admission he became semistuporous and had some difficulty with respiration. The medical consultant was so impressed with the respiratory obstruction that he advised a nose and throat consultation. He felt that the patient was suffering from a respiratory obstruction of some type rather than a severe nephritis. At this time a chemical analysis of the blood revealed: urea, 350 mg. per hundred cubic centimeters of blood, and creatinin, 10 mg. per hundred cubic centimeters of blood.

By direct laryngoscopy the larynx was seen to be coated with a peculiar whitish thick covering. This was wiped away with some difficulty with fairly large gauze sponges soaked in sweet almond oil. Because the patient still showed signs of respiratory difficulty, that is, some episternal and infrasternal retraction on inspiration, a bronchoscopy was performed. A 7 mm. bronchoscope was rapidly passed through the glottis after a preliminary swabbing of the larynx with 10 per cent cocaine solution. As the bronchoscope entered the trachea there was seen a thick membrane on the posterior tracheal wall. This was loose in some places, so that partial obstruction to the airway resulted. The loose membrane was picked out with difficulty and the bronchoscope passed down to the main bronchus of the right side. Here also was the same coating, apparently originating from the posterior wall. In the lower bronchus there was almost a complete occlusion of the branches by the coating which had evidently become loose.

CASE 3.—M. H., a woman, who had had a nephrectomy performed for tuberculosis of the kidney nine years previously, was admitted, Jan. 14, 1925, and died of pronounced uremia seven days later. Chest examination showed crackling rales and dulness over almost the entire chest. The medical service noted that the patient appeared to have signs of obstruction in the chest. A diagnosis of bronchopneumonia was made in this case, although there had not been any rise in temperature and the patient did not show evidence of the usual physical signs of a bronchopneumonia in the development of the chest condition. Bronchoscopy showed much the same picture as that described in case 2.

The question naturally arises, How many cases diagnosed as bronchopneumonia are instances of this peculiar phenomenon? Lancereaux deals at length with the bronchial lesions of uremia. He states that next to the digestive mucosa the bronchial surfaces carry the greatest burden of excretion in renal insufficiency. He quotes Lasegue as having described three types of bronchial symptoms in uremic patients. Lancereaux mentions that an intensely red bronchial mucosa is found at autopsy.

In considering the etiologic significance of this coating one can only refer to the manifestations of uremia on other body surfaces. In the intestines there occur ulcerations which are caused by the abnormal chemical reaction in the intestinal mucosa by the retained nitrogenous substances as they are eliminated in some irritative and, no doubt, changed chemical form, in the intestinal glands.[5] Or the condition of uridrosis occurs,[6] in which there is a deposition on the exposed portions of the skin of crystals of urea, which form a coating giving the appearance "as though flour had been sprinkled over the surface." Some of the conclusions which Leyrat gives in his discussion of uremic ulcerations in the intestines are of interest, for they apply equally well to the subject of this paper. He says, in substance:

Azotemia is the direct cause of uremic ulcerations. These ulcerations are pathognomonic of azotemia, just as albuminuric retinitis or pericarditis. The study of the elimination of azotemic substances following renal lesions shows that the elimination of these substances is accomplished by the digestive mucosa. Urea ought to be considered as the substance that is responsible for the production of these ulcerations.

In like manner it can be deduced that the respiratory mucosa has to do with the elimination of urea and the other nitrogenous poisons, both from the remarks of Lancereaux quoted and from my own observations.

It is generally accepted that all the tissues of the body are saturated with the products of uremia. It is therefore reasonable to expect that the mucous glands should carry these poisonous products. Such is the case, for one can see the stomas of the glands of the soft palate pour forth a thick, gluey secretion which, together with

5. Leyrat, Louis: Pathogénie des ulcerations Gastro-intestinale urémiques, Paris thesis, 1923.

6. Dubring, L. A.: Diseases of the Skin, ed. 3, Philadelphia, J. B. Lippincott Company, 1882, p. 143.

the salivary secretion, goes to make up the pultaceous coating in the oral cavity.

That this coating has a definite diagnostic significance is demonstrated by case 4, in which its presence was the only thing to direct the attention of the examiner to an impending uremia.

CASE 4.—H. D., aged 42, admitted to the nose and throat service, Oct. 30, 1926, with a nosebleed, had been suffering with this nosebleed for the past three days. His nose was packed and the bleeding controlled. Two days later, when he was no longer troubled with the nasal condition, he developed a sore throat, and a membrane made its appearance on the soft palate directly above the tonsil on the left side, partly covering the tonsil and extending down into the pharynx. This membrane was whitish and thick. The mucosa was markedly injected. A provisional diagnosis of diphtheria or Vincent's angina was made by the physician who saw him. This diagnosis, however, was changed to that of impending uremia the next day. Of significance was the absence of elevation of the temperature, cervical adenitis, or marked odor to the breath, and above all no bacteria were found. Chemical study of the blood revealed: urea, 330 mg. per hundred cubic centimeters, and creatinine, 5 mg. per hundred cubic centimeters.

In addition to its possible diagnostic significance, the coating in the larynx may cause obstructive symptoms that could lead to the employment of tracheotomy through error in diagnosis. I recall the case of a man in whom a tracheotomy was performed late one night, a few years ago. He was rushed into the hospital by one of my colleagues because of laryngeal obstruction. He died the morning after tracheotomy. It was then decided that he had a severe nephritis, but the mechanism of his obstruction was never explained.

The thought also occurs as to what extent the presence of a laryngeal or a tracheobronchial coating may influence a fatal outcome in some of these cases. How much does the partial asphyxia help toward an exitus? Also, to what extent may the presence of a tracheobronchial coating predispose a patient to a bronchopneumonia?

CONCLUSIONS

Eleven cases showing a peculiar doughlike coating on the mucous membrane of the hypopharynx, larynx, trachea or bronchi have been observed.

This phenomenon appears during the stage of the onset of uremia in those cases in which it makes its appearance.

It may occur in the oral cavity, pharynx, larynx, trachea or bronchi. It may occur in only one or all of these structures. The esophagus is also probably involved in some instances, but was not investigated.

When seen early, this coating is diagnostic of an impending uremia.

The presence of this coating in the trachea and bronchi may lead to physical signs which are mistaken for those of bronchopneumonia.

No doubt tracheotomies have been performed because of the presence of a laryngeal or tracheal coating.

30 East Fortieth Street.

ABSTRACT OF DISCUSSION

DR. N. M. KEITH, Rochester, Minn.: All of us who practice internal medicine have frequently made an incorrect diagnosis in the case of patients who are often up and around, with a high blood urea and high blood creatinine. I recall a case in which a diagnosis of pernicious anemia had been made, and a week later the blood urea was determined and was found to be 300 mg. Of course, we then learned that the case was one of uremia and that the anemia was secondary to the renal lesion. It is of interest that uremic stomatitis, of the ulcerative and the pseudomembranous types, has been described by numerous French authors, but there is no mention of it, except one little sentence by Osler, in English literature. If Dr. Myerson's observation can be confirmed, we shall be able to make a diagnosis of uremia before the laboratory evidence is obtained in certain cases, and in that way clinical medicine will at least catch up to the laboratory evidence in these cases. In our clinic, Dr. Hench and Dr. Hempstead have been very much interested in the stomatitis of uremia for the last six years. The lesion that they have studied has been of the pseudomembranous type, quite different in some respects from the lesion Dr. Myerson described. I might point out that in a number of these cases of asthenic uremia, the mouth is dry; the mucous membranes are dry; the patient is dehydrated. It is one of the cardinal symptoms of uremia that dehydration may be marked. In one of my own cases in which there was marked diffuse sordes of the oral cavity, the appearance of the mucous membrane improved following the administration of water in large amounts, and this gray secretion disappeared. The cause of such a secretion, or of these membranous or ulcerative stomatitides, whether they occur in other parts of the gastro-intestinal tract, or only in the larynx and trachea, remains to be found. Dr. Myerson has spoken of the possible excretion of large amounts of urea through the mucous membranes. Dr. Hench has shown that in excretions of the saliva the urea may be extremely high, but that the factor of ammonia must be seriously considered if one wants to get a correct idea from an analysis of the saliva of the exact blood urea content, so that it is not an easy thing to determine the exact amount of urea excreted as such in this way. Another point of interest is that, as a matter of fact, we do not know what is the cause of the ammoniacal odor of urine, much less, of the so-called uremic breath.

LAMINECTOMY

ANALYSIS OF A SERIES OF THIRTY CASES *

EDWIN W. RYERSON, M.D.
CHICAGO

My purpose in this paper is to report a series of thirty cases in which I performed laminectomy, and to ask consideration for an operation proposed for the relief of a part of the paralysis due to fractures and dislocations of the vertebrae.

It is conceded that the number of cases is small, but it is believed that they may be of some statistical value.

The operations were performed for fracture-dislocation of the spine in fourteen cases; paralysis due to tuberculous spondylitis, seven; tumors of the spinal canal, three; bullet in the spinal canal, two; Foerster's operation for cerebral paraplegia, two; congenital defect of the spine, with spondylolisthesis, one, and extradural abscess, one.

CASES OF PARALYSIS DUE TO POTT'S DISEASE

In the cases of paralysis due to Pott's disease, operation was performed only after a long period of careful, conservative treatment by complete recumbency in bed, usually on a Bradford frame. It is probably true that in many such cases there will be partial or even complete recovery if recumbency is enforced for a long enough time, but such treatment is difficult and expensive, and there is often a limit to the endurance and the financial ability of the patient. Under ideal conditions, I am strongly in favor of conservative treatment, and I have so treated a great many patients with entire satisfaction.

* Read before the Section on Orthopedic Surgery at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 19, 1927.

One of these patients spent nine years on a Bradford frame, and eventually recovered completely, but one does not often encounter such a combination of calm courage and material comforts as existed in this case.

It is not the part of good surgery to persist too long in conservative treatment if an equally good result can be attained by reasonably safe operative measures, in a shorter time and with less risk of permanent injury to the cord.

It is my present belief that laminectomy should be resorted to in all suitable cases of Pott's paraplegia which do not show any very distinct improvement after six months of competent conservative treatment. Of the seven patients here mentioned, one, a man of 45, died suddenly on the ninth day, of embolism. The other six recovered from the operation. One has regained complete function but still has increased knee-jerks; three are considerably improved, and the other two are not at all improved.

The three latter patients had abscesses in the spinal canal, with thick granulation tissue lining the canal and compressing the cord. An Albee spinal fusion had been performed nine years before in one of these abscess cases, and a Hibbs fusion seven months before in another. The spinous processes were found to be firmly fused in both cases, and it was possible to decompress both cords without destroying the ankylosis. In all three abscess cases the wounds healed rapidly without infection or drainage. In several cases the laminectomy was combined with an attempt to produce ankylosis by osteoperiosteal grafts.

The results of these laminectomies, one patient practically well, three improved, and two not improved, are not brilliant, and it cannot honestly be held that the improvement was incontestably due to the operations. It can only be stated that no improvement occurred until after operation, and that laminectomy in Pott's paraplegia is a reasonably safe operation even when a tuberculous abscess exists within the spinal canal.

I feel that the operation has been unjustly condemned by many writers on insufficient evidence, and that it should more often be employed.

FRACTURE-DISLOCATION OF THE SPINE, WITH CORD SYMPTOMS

A mass of literature on fracture-dislocation of the spine with cord symptoms has been published in the last twenty years. Some writers advocate early laminectomy; the majority favor delay in operating; a very few oppose all operative procedures.

In cases of extremely severe injury, with evidence of an immediate and complete transverse lesion of the cord, it would undoubtedly be inadvisable to perform a laminectomy; but what neurologist can state with absolute certainty that the cord symptoms may not be due to an intradural or extradural hemorrhage, or to fragments of bone compressing the cord?

I have seen many cases in which the paralysis was not immediate and the shock was not severe, but, nevertheless, the patient was allowed to lie for many days under constant medical and neurologic supervision without any surgical intervention. It is in cases of this kind that I believe great harm is done by delaying operation. A properly performed laminectomy is not a dangerous operation. It can readily be done under local infiltration anesthesia if a general anesthetic is deemed unwise. Every hour of delay means increased harm to a cord which has not been entirely crushed, and an early decompression may give an opportunity which in a few hours may have passed forever.

I have seen many patients with injured spinal cords. I have operated on fourteen when there seemed to be a possibility of relief. Six of them had fracture-dislocations in the cervical region, with apparently complete destruction of the cord. Their condition was pitiable, and they and their friends earnestly desired an attempt at relief. They had been injured from one week to three months previously. Reflex activity was present in all cases, but I realize now that it was probably a mass reflex. These six patients all died, from three days to three weeks after the operation, but it could not be shown that the operation was the cause of death. There was very little shock, there were no infections, and most of the patients stated that they felt much relief after the decompression. The seventh patient with cervical injury was a woman with a dislocation of the atlas on the axis. The odontoid process was fractured. Although she was practically moribund, the arches of the second and third vertebrae were removed. While I was attempting to remove the arch of the atlas, her condition became extremely bad and the operation was discontinued. She died within an hour.

These seven cervical cases, therefore, were all failures. Not one of the patients was saved.

Seven cases of dorsal or first lumbar injury gave better results. Three of these showed signs of complete lesion, and the paralysis has not improved with the operation, although the patients are still alive after seven, four and three years. The fourth patient, who had a fracture-dislocation of the twelfth dorsal vertebra with a nearly complete lesion, has made a remarkable recovery. The cord, two years after injury, was found to be bent in S shape around the dislocation, and flattened under the arch. The patient had spent two years in a hospital, helpless and hopeless, but after the decompression he rapidly improved and is now at work with only a slight spasticity.

Another case was unusual in that the fourth dorsal vertebra was fractured vertically through the body, with both laminae broken and crushed down on the cord. This man had not a complete lesion, as some reflex activity remained in the right foot. He recovered entirely except for a slight spasticity of the left foot.

The sixth patient was a woman who fell from a window and fractured the twelfth dorsal vertebra. She had a nearly complete lesion, and was operated on two years after the injury; the date of operation was Dec. 9, 1923. A letter received two months ago states that her condition is much improved and that she can walk fairly well with a cane.

The seventh patient, who had a fracture of the first lumbar vertebra, is slightly improved but is still bedridden.

To summarize these results, in seven cervical cases, all with complete lesions, all the patients died. In seven dorsal and lumbar cases, three with complete lesions, all the patients are alive but not definitely improved. In four with partial lesions, three patients are practically well, and one is slightly improved. No one can say that the patients with complete lesions would have recovered if they had been operated on very early, but, on the other hand, they certainly would not have been made any worse.

PROPOSED OPERATION

For several years I have been considering a nerve transplantation for the possible relief of patients with a complete cord-lesion in the lower dorsal or upper lumbar segments. I have not attempted to perform it

as yet, because, while it is surgically possible, several neurologists have expressed unfavorable reaction toward it. It is presented at this meeting to obtain further views as to its possible value.

The proposition is this: The patient has a fracture-dislocation of the twelfth dorsal or first lumbar vertebra, with a complete cord-lesion. He will probably live, paralyzed below the waist, until killed by an ascending urinary-tract infection or an intercurrent disease.

It is surgically possible to dissect and free up several of the intercostal nerves next above the lesion, and to transfer them downward along the spine. Their distal ends could then be attached to suitable nerves below the lesion, either inside or outside the spinal canal. Elsberg states that the innervation of the bladder and rectum is derived from the third and fourth sacral nerves. These could be exposed by laminectomy, and an end to end anastomosis could be made in the spinal canal at the cauda equina, several of the intercostal nerves being used. If necessary, the intercostal nerves could be elongated by the cable transplant method with pieces of the saphenous or musculocutaneous nerves removed from the leg.

I have discussed this proposition with several surgeons and neurologists, who have agreed that the plan is feasible. Dr. Peter Bassoe suggested that the highly specialized bladder and rectal nerves might require more than mere muscular and sensory power. Other men have been more favorably impressed with the idea.

I have several patients at the present time who would willingly submit to the experiment, but I do not want to attempt it without more encouragement than I have so far received. It is not possible to gain the information by animal experimentation. My own knowledge is not sufficient to warrant the operation on a human being. I therefore lay the proposal before you and ask for an expression of opinion.

REMAINING LAMINECTOMIES

To complete my list of laminectomies:

Three were for tumors in the spinal canal.

Two were performed for the recovery of bullets in the spinal canal, with complete paraplegia. The cord had been completely divided in one case and was pushed upward in the canal, leaving the canal empty from the fifth dorsal to the sixth cervical segment. The man, a burglar, died in four days. The other patient is alive, a year and a half after the bullet was removed from the region of the first lumbar vertebra. He has shown no improvement.

Two Foerster operations were done in cases of cerebral spastic paraplegia, three lumbar sensory roots on each side being divided. Neither patient was benefited, and one, a young woman, died of pneumonia two weeks after the operation. The wound, in this case, became infected, the only infection in the entire series.

A girl, aged 20, suffered a sudden paralysis, at first thought to be due to anterior poliomyelitis. A year later, after passing through many hands, she was found to have a spastic paraplegia. Dr. Peter Bassoe, who examined her with me, considered that there was a definite block at the level of the fourth thoracic vertebra, and agreed that a laminectomy was advisable. Dr. A. D. Bevan advised against operation. I have published a report of this case.[1] After removal of the second, third, fourth and fifth laminae, a mass of granulation tissue about 1¼ by ½ by ¼ inch was found on the posterior surface of the dura. It was sharply defined, without surrounding area of inflammatory reaction. As we looked at it, a drop or two of pus exuded from the summit. The whole mass was carefully removed with a knife, the surface of the dura wiped off, and the wound sutured and drained. The girl made a rapid recovery from the operation, and the paralysis has completely disappeared. The original cause of the trouble was probably a localized osteomyelitis in the body of the fourth dorsal vertebra, as a small defect could with difficulty be seen in one of the roentgenograms.

The thirtieth case was a spina bifida occulta, which was repaired by a periosteal and fascial flap.

1. Ryerson, E. W.: Spastic Paraplegia Due to Infectious Granuloma on the Dura, Operation, Recovery, Arch. Neurol. & Psychiat. 7: 270 (Feb.) 1922.

SUMMARY

1. Laminectomy in long-standing cases of Pott's paraplegia is a reasonably safe operation and is in some cases beneficial.

2. Immediate laminectomy in cases of fracture-dislocation of the spine with marked cord symptoms is reasonably safe and should be performed as a routine, especially when the paralysis did not occur instantly.

3. Old cases of incomplete cord lesions due to injury may be greatly improved by laminectomy.

4. It is proposed to transplant several intercostal nerves downward into nerves below the lesion, in cases of complete transverse destruction of the cord in the region of the twelfth dorsal and first lumbar vertebrae.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

DR. D. B. PHEMISTER, Chicago: Dr. Ryerson referred to osteomyelitis as an indication for laminectomy. Osteomyelitis of the spine is a lesion which occurs more frequently than is generally recognized. When the disease begins in the body of the vertebra, the abscess is more likely to be located in front of the spine but the pus may extend backward, producing either dural perforation with meningitis, or an extradural abscess. When the disease begins in the lamina, it may lead to extradural abscess, but rarely to perforation of the dura. Root symptoms are usually present, and occasionally there are symptoms of compression of the cord. Laminectomy should be instituted as soon as the diagnosis is made, as delay may result in an extensive spread of the pus along the spinal canal, and eventually in meningitis.

DR. GEORGE E. BENNETT, Baltimore: Several years ago I did a series of laminectomies on fractures of the cervical spine with the hope of ascertaining whether they did any good or not. My feeling about it is that if one is going to do a laminectomy for an acute fracture it should be done early, but that if it is done early, one does not know whether he has done his patient any good or not because a certain number of patients recover without operation. I was also very much interested in Dr. Ryerson's discussion of laminectomies for paraplegia in Pott's disease. I wonder whether he could not give us more concrete indications for operation rather than the time element. I should like him to express his opinion as to whether he felt that the loss of sensation or the change from spastic paralysis to a flaccid paralysis would be an indication rather than the six months' time limit.

DR. A. W. ADSON, Rochester, Minn.: With reference to the subject of Pott's disease producing transverse myelitis, I had an experience that was not very profitable. The patient was a young woman who had had a unilateral lesion; that is, she had had loss of reflexes, loss of sensation, and some motor disturbance in one leg. Spinal puncture revealed a block, and in view of that we felt that she probably had a cord tumor. There was no evidence of abscess. There was some evidence of erosion, which occasionally may be seen in a cord tumor. On examination I found a mass anterior and slightly lateral to the

second lumbar, which I felt was probably a neurofibroma. It proved to be an abscess. During the dissection, in attempting to lift the dura from this mass, I opened it, and I am sorry to say that that patient died of a tuberculous meningitis. With reference to when to operate, the practice that we have been following is that if the patient responds to a fairly reasonable and appreciable degree, laminectomy is not considered. I agree with Dr. Ryerson that if a patient does not respond, perhaps it might be well to explore a little earlier. With reference to laminectomies for fractures, if there is a transverse lesion of the dorsal area, little is to be accomplished by a laminectomy done two or three months, or longer, after the injury. In cervical cord injuries, with a fracture dislocation of the fifth and sixth vertebrae, something may be accomplished by a laminectomy. Laminectomy should not be done later than eighteen months following the injury. If the injury is in the lumbar area, and there is a history of a complete lesion, with partial improvement within eighteen or twenty-four months, we begin to investigate to determine whether something might be accomplished by a laminectomy, and we have obtained some results. In acute cases, if the dislocation is of 1 cm. or more, in the dorsal area, little is to be accomplished; in the cervical cases one may be able to accomplish something, since the cervical cord is less vulnerable to injury than the dorsal; in the lumbar region, we always explore. Attention has been called to the value of the Queckenstedt test. In a cervical lesion the roentgen ray shows some displacement. A spinal puncture is done and the block determined; if free cerebrospinal fluid comes through, not much can be accomplished by laminectomy. If there is a partial block, laminectomy may offer something. The same principle holds true in the lumbar region. Therefore it is our practice in acute cases to use this test as a guide to the surgical indications.

DR. HARRY E. MOCK, Chicago: In April, 1925, within two weeks of each other, two patients with severe fracture of the first and second lumbar vertebrae came under my care. The almost identical nature of the lesions, the identical age of the boys (19), and the marked similarity of the physical conditions following the fractures, gave an unusual opportunity for observing the results following laminectomy in each case. Both had complete paralysis of the lower extremities, accompanied by complete loss of bladder and rectum control. The Chicago boy had a complete anesthesia of the right lower extremity and complete anesthesia of the left lower leg, but a marked hyperesthesia of the left thigh. The country boy had complete anesthesia of the left leg with slight sensation in the right lower extremity. The first boy was operated on within two and one-half hours after the injury. There was marked comminution of the laminae of the first and second lumbar vertebrae with partial dislocation of the first lumbar vertebra. The cord was definitely compressed by the fragments, and a spicule of bone, shaped like a spear, penetrated the right side of the cord. When this spicule of bone was removed, there was a marked escape of spinal fluid. I believe that most of the spinal fluid escaped from this lad. Dr. George Hall, the neurologist, who was present at the operation, assured me that the patient might lose all the spinal fluid and still get along all right. There was no pulsation in the cord. All compression was removed and the wound closed. This boy made an excellent recovery from the operation. Within three months he had regained control of the bladder and within five months, control of the rectum. Deformities, such as foot drop, were prevented by splintering, massage and muscle training exercises which were started early. Bedside occupations were given to him, and later, when he was in a wheel chair, he was taken to the occupational therapy shops. Here he was placed on a seat with his feet strapped to the pedals of a jig-saw and he was taught to use the saw, although at first he found it necessary to manipulate it with his hands. When discharged from the hospital, he was sent to the physical therapy laboratory where muscle training exercises, massage and occupational therapy were continued. Today, two years following his accident, the patient can walk, although there is still some difficulty with foot drop in each extremity; otherwise he has recovered from the paralysis. Through the aid of the state rehabilitation board, he is receiving training in a business college and plans to become a public accountant. The other boy, operated on forty-eight hours after his accident, also had a marked compression of the cord from the fractured fragments; the cord was freed and was observed to pulsate before the wound was closed. He likewise made an excellent recovery from the operation. The same opportunity for physical therapy and occupational therapy did not exist in this hospital, and while he can walk, and evidence of the paralysis is disappearing, he is six or eight months behind the first boy in his progress to recovery.

DR. H. W. ORR, Lincoln, Neb.: My experience in laminectomies for injuries in the cervical region has been very much the same as that of Dr. Ryerson. A recent experience may suggest something to those who have not been through a similar one. About three months ago, a woman was brought to the hospital for laminectomy; a telephone message in advance announced that she had been thrown out of an automobile about four or five days before, and had had a fracture dislocation in the lower cervical region. While she did not have a complete paralysis (in fact, she did not have any great amount of paralysis) she was brought in chiefly because of muscle spasm and pain in the neck, shoulder and arm, which was extremely severe. I was not enthusiastic about a laminectomy after I saw her. On examination, I did not find very much. The roentgenogram showed a forward displacement of the fifth cervical vertebra, of about one-half to three-fourths inch, and fractures of the laminae of both the fourth and the fifth vertebrae. I introduced my thumb into the back of the pharynx, and extending it down as far as I could, I could feel the deformity very plainly. Thereupon I gave her an anesthetic, and with my thumb still farther down the pharynx was able, with a very easy manipulation, to put the vertebra back into such a position that from the inside of the pharynx, at least, the spine felt normal. I made a high Thomas collar by applying successive layers of cotton and muslin bandage and adhesive plaster. In this way I secured satisfactory immobilization of the entire region. There was about 90 per cent anatomic replacement of the injured parts. When she woke up, her pain was gone, and she has made a perfectly satisfactory recovery.

DR. A. L. LOCKWOOD, Toronto: In the spring of 1915, I saw about forty gunshot wounds of the spine, from three days to three weeks following their injury. On account of the problem of infection and the prejudice against operation, the surgical staff had almost ceased operating on these men. After two or three weeks we managed to persuade George Guyon of Paris to go over these cases. Although prejudiced against any operative intervention, he persuaded us that we should attempt some surgical procedure in these cases. We were not able to do very much because we had infection to contend with, but we did realize that the very small percentage of the men with high lesions involving the atlas and axis should not be operated on. If, however, the lesion was in the lower cervical region, and the surrounding area was not too much infected, we felt that we should attempt an operation. We did not have very much success with the dorsal lesions. On the other hand, we decided that when we could possibly work through a clear field, we would deal with lumbar lesions surgically if they were not complete. After a year I moved to an area nearer the front where I saw these patients, in the majority of instances, within six hours after their injury, and where we were able to demonstrate almost immediately that if we could get these patients early and do a complete débridement, the operation was almost as aseptic as is the case in ordinary civilian surgery. We were obliged to change our attitude somewhat in regard to these spinal lesions, so that as a deliberate policy we looked on all these spinal lesions as requiring an emergency surgical procedure, with certain reservations. In the first place, patients with injuries high up in the atlas and axis area, when followed from an advanced operating center back to a casualty clearing station two days later, would frequently be found dead following operation. On the other hand, patients with whom I had sent the instruction, "Please do not operate on this patient," were later found in a surprisingly good condition. So that we came to the conclusion that if the injury was a high one, in the atlas

and axis, with dislocation, and the patient was dying, surgery should not be undertaken. With all lower cervical lesions, we operated as soon as we could get the patient on the table, under a select type of anesthesia: ether by rectum or by mouth, with port wine and paraffin, local anesthesia and lots of morphine. We tried to avoid the general anesthetic as far as possible. We regarded operations in the lower cervical lesions as an emergency measure. In the dorsal lesions we were a little more guarded because we did not get startling results. All patients with a traumatic lesion of the spine should be examined by a group of men comprising a neurologist, a general surgeon, a medical man and an orthopedist, and anteroposterior and lateral roentgenograms should be made.

DR. EDWIN W. RYERSON, Chicago: I had nothing new to offer in regard to the surgery of spinal lesions except to indicate my view that instead of waiting for consultations and opinions from neurologists and other men, the only time when one has any chance of doing any good in any of these severe cord lesions is immediately, just as soon after the injury as one can get the patient on the table. If one waits, edema, hemorrhage and compression of the cord do their worst. I do not think that we should wait. If a man has a lesion of the spine that has produced a severe paralysis, one can help him only within a few hours in the average case, so I do not believe in delaying. I am sorry that more was not said either for or against my proposal for the nerve operation. It has been clearly demonstrated by many investigators that the cord itself does not regenerate. It is of no use to remove a section of the cord and sew the ends together, and expect anything to happen of benefit to the patient. There is no sheath to the nerves in the spinal cord. The cauda equina has a sheath, and a nerve transplantation there should be theoretically possible. I have seen so many persons with complete spine lesions living years and years after the injury, perfectly well mentally and absolutely crippled physically, that I am inclined to try the transplantation that I have proposed. Since so many of these persons die of urinary infections, it seems to me that we might prolong their lives by a nerve transplantation into the bladder nerves, and it might be possible to supply enough to some of the lumbar roots to provide a certain amount of motor power to the legs. The value of this procedure cannot be proved on animals, as I have said; we can do these experiments only on human beings, and I am inclined to do them, although very little support has come to me from the profession. So far as I know, and I have looked over the literature rather carefully, no one has as yet done this as a formal operation. I think it ought to be tried. I will furnish the patients and some capital, and an enormous amount of interest, if some of the neurologic surgeons will undertake this. If they do not feel like doing it, I will have to roll up my sleeves and go at it myself.

Mosquito Control.—Oiling as a mosquito control measure should only be considered a temporary relief and a last resort to be used only in instances where permanent remedial measures are impossible. The oil used in the San Francisco Bay region is a mixture of crude oil with equal parts of "stove distillate." This makes a satisfactory oil which can be spread with knapsack pumps or power sprayers, and has sufficient body to accomplish death to the larvae before it evaporates from the surface. Crude oil costs 5 cents a gallon, and "stove oil" 8 cents a gallon. A number of different types of power sprayers are used from which the spraying can be done directly from trucks at distances varying from 50 to 100 feet; some from pressure tanks, others from rotary oil pumps driven by gasoline engines, or by power taken from the truck motor. Approximately all the oiling of the fresh water areas which are tributary to marsh lands is done with knapsack pumps. These are entirely inadequate when 500 to 600 acres are to be gone over. One instance where power spray pumps are used is on the property of the California Fruit Canners Association. This ranch consists of 2,000 acres and has fifteen miles of drainage canals, every foot of which is covered with oil three or four times a year to prevent breeding.—Stuart, E., and Stover, N. M.: *Am. J. Pub. Health* 17:707 (July) 1927.

Clinical Notes, Suggestions and New Instruments

INTERESTING ASPECTS OF A CASE OF CONGENITALLY ABSENT GALLBLADDER

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This is a case of a congenitally absent gallbladder. It is worthy of report, first, because of its comparative rarity; secondly, because it indicates the closeness of the diagnostic relationship between biliary drainage and cholecystography, both of which were used in the course of the search for the source of the symptoms; and, thirdly, because it illustrates an interesting aspect of the mental process involved in making a diagnosis.

REPORT OF CASE

M. B., a married woman, aged 59, a multipara, had typhoid when she was 23, and, as its sequel, suffered a pain extending throughout the lower right extremity for many years. At 30 she had a "nervous breakdown," which continued for several months. The menopause came at 50, without vasomotor disturbance. At 53 she had influenza for several weeks.

The illness in this case had a duration of four years. The chief complaints were an explosive type of belching, constant pressure in the epigastrium, and pyrosis with its characteristic sodium bicarbonate habit.

The physical observations were essentially negative, save for a slight umbilical hernia and a degree of hypersensitiveness and hypersthenia in habitus.

Chest radioscopy revealed excursion and illumination equal and unrestricted in the two pulmonic fields. The apexes and the costophrenic and cardiophrenic sinuses and the retrocardiac space showed a normal clearance. The diaphragms were smooth in contour, the right being in normal position but the left on the same level as the right, probably pushed up by an enormous gas-bubble.

The symptoms thus far picture biliary malfunction, the elevated left diaphragm and the umbilical hernia partaking in the symptomatology.

The urine was negative to tests for sugar, albumin and indican.

Tube tests revealed that the fasting contents were 20 cc. and congo positive without food remnants. The Ewald test recovered 30 cc. well chymified, with free hydrochloric acid 20, and a total acidity of 56.

The blood sugar reading was 0.120.

Biliary drainage by the Meltzer-Lyon method was made at two different times. In each instance they produced about 20 cc. of light colored bile, free of any micromacroscopic evidence of a pathologic condition. Repeated stimulation with magnesium sulphate met no response. The two tests were definitely alike in regard to amount, appearance and cellular negative results. That the duodenal tube was in correct position for successful drainage was, in each instance, ascertained by a roentgen-ray film.

Combined radioscopy and radiography of the gastro-enteric tract did not disclose any direct or indirect evidence of right upper quadrant disease.

On cholecystography, a shadow of the gallbladder could not be seen, though the patient did not vomit the dye and no undissolved capsules were visible. A varied setting was used to obviate any possible fault in technic.

COMMENT

The absence of B bile from the aspirates, the absence of a shadow from the cholecystograms and the general picture of the patient, concisely described by Deaver as "fair, fat, forty and belching," indicated most justifiably a diagnosis of cholecystitis. There was also a suggestion, but with less likelihood, of a cystic duct obstruction or of a thickened, shrunken viscus without capacity to concentrate bile.

An intrahepatic gallbladder was contraindicated because the dye would have effected visibility in that position.

As the illness was of long duration, the symptoms unremitting and increasing in intensity, in the absence of any indications to the contrary, it was decided to explore the right upper quadrant surgically. The patient was admitted to the Beth David Hospital, New York, in January, 1926. The surgeon removed the umbilical hernia and the appendix and made a most thorough, though futile, search for the gallbladder. I quote, in part, the operative observations by Dr. Leo B. Meyer: "Exploratory for cholecystitis: Transverse incision for cure of umbilical hernia. Transverse incision carried across right rectus, vertical midrectus to ensiform. Appendectomy: Appendix kinked and thickened. In spite of most painstaking search using a Candron light, no gallbladder could be found. Entire inferior surface of the liver was carefully inspected, both right and left lobes from the free edge to the posterior surface. With fingers in the foramen of Winslow grasping lesser omentum nothing was seen to enter behind free edge. Palpitation of lesser omentum was negative. Search for the gallbladder had to be abandoned with the feeling that this is one of those cases in which a gallbladder was absent or probably embedded in liver substance."

The interesting aspects of this case, mentioned by way of introduction, deserve comment.

The known instances of a congenitally absent gallbladder do not mount to forty. More such cases have been reported in the last decade than in the previous one, indicating that the lack in the past of such facilities for introspection of the body economy as the roentgen ray, biliary drainage, cholecystography and kindred agencies of research accounts in some degree for the scarcity of this anomaly.

This case emphasizes what may be termed the diagnostic parallelism between the absence of B bile from the aspirates and the absence of the shadow from the cholecystograms. No gallbladder, hence no shadow, no B bile. The reciprocally confirmatory relationship between these two methods of diagnosis is true as a general rule. And a general rule must have its exception.

This is well illustrated in an interesting case of a congenitally absent gallbladder reported by Lintz.[1] He did not obtain a shadow in cholecystogram but found B bile in the aspirates. From this he inferred that the "B specimen does not always come from the gallbladder, if it ever does." That the B bile very generally comes from the gallbladder is beyond controversy, for I have drained it from that source in hundreds of cases, and for a period of years.

The exceptional condition found by Dr. Lintz is, in great likelihood, to be explained on the same principle as obtains in the recovery of B bile in long past cholecystectomized patients, wherein the biliary ducts often undergo gradual dilatation, thereby inducing bilary stasis and permitting the recovery by aspiration of characteristic B bile, differing measurably in color, viscosity and specific gravity from the A and C bile normally obtained from the ducts and liver, respectively.

Dr. A. A. Berg[2] informs me that most of the patients who have had the gallbladder removed show considerable compensatory enlargement of the biliary ducts. Dr. Richardson[2] of the Massachusetts General Hospital writes that "it is the general impression of the surgical service [of the hospital] that cases operated on following a cholecystectomy show an occasional, but not an invariable, dilatation of the common bile-duct." Deaver[2] states that "some do and some don't." Coffey[3] has covered the subject very thoroughly. He tells of a duct large enough to pass the index finger downward into the duodenum. He refers to "this enormously distended duct, which in reality is a diverticulum of the duodenum."

It is noteworthy that in the mental process of constructing the diagnosis of this case, from the observations as they were gradually revealed, the most logical conclusion, that of a missing gallbladder, was not even considered. This was very likely due to the improbability of encountering such a condition, though the results warranted such a conclusion certainly as much as they did that of a gallblader that failed to furnish B bile or to be roentgenographed because of inflammation, mural thickening or occluded ducts. It serves to remind us that the art of diagnosis is strictly a logical procedure and should be applied, and that the laws of chance should be utilized only to determine the order of elimination of diagnostic possibilities.

38 West Seventy-Sixth Street.

1. Lintz, William: Cholecystography and Lyon-Meltzer Test in a Patient with a Congenitally Absent Gallbladder, Am. J. M. Sc. **173**: 682 (May) 1927.
2. Personal communication to the author.
3. Coffey, R. C.: Dilatation of the Common Bile Duct in the Absence of a Functioning Gallbladder, Ann. Surg. **83**: 479 (April) 1926.

FATALITY FOLLOWING VARICOSE VEIN INJECTION

O. A. OLSON, M.D., MINNEAPOLIS

A widow, aged 33, who had two children living and well, the youngest aged 2, and who had aborted the second month, in 1924, developed varicose veins in both legs during her first pregnancy. Rupture of the veins had not occurred. The Wassermann reaction was negative. The patient was treated by elastic stockings with complete relief until June 3, 1927, when she went to the university dispensary and received injections for varicose veins, with salt solution and calorose, June 3 and again June 8. She felt perfectly well until June 13, when at 5 p. m., while playing with her children, she fell dead.

Autopsy revealed a well developed, well nourished white woman, 165 cm. in length and weighing about 140 pounds (63.5 Kg.). Rigor was present in the legs. There was purplish hypostasis; there was no edema, cyanosis or jaundice. The pupils were equal and regular. Varicose veins were palpated in the right leg below the knee. A small red area was noted on the inner aspect of the tibial region.

The abdominal and plural cavities were normal.

The heart weighed 250 Gm. The myocardium was of normal color and consistency. No changes were noted in the valves. The coronaries and the root of the aorta were smooth. When the right ventricle was opened and the opening extended into the exit of the pulmonary artery, a thrombotic mass from 8 to 10 cm. in length was noted. This was slightly glistening in appearance and somewhat friable. It did not show well defined bullet-pointed ends. On section and microscopic examination it was found to be thrombus.

The right lung weighed 300 Gm. Crepitation was present throughout. The lung was free from consolidated areas. On section, the lung was feathery in consistency; no thrombi were found within the pulmonary artery. The left lung weighed 250 Gm. and was similar in appearance to the right.

The spleen weighed 300 Gm. It was purplish and of apparently normal consistency. On section, the pulp was normal.

The liver weighed 1,800 Gm. It had a smooth surface, was of normal color, and on section the centers of the lobules did not show darkening. The gallbladder contained about the usual amount of bile; it was free from concretions.

The mucosa of the stomach and duodenum appeared normal. The stomach contained material having the odor of vanilla. A piece of candy was found in the stomach content. The content was preserved.

The pancreas and suprarenals did not show gross abnormalties.

Each kidney weighed 150 Gm. The capsules stripped easily and left smooth surfaces. On section the dimensions of the cortices and medulla were normal and the cortical markings were easily made out. The mucosa of the bladder appeared normal.

No gross changes were noted in the ovaries, tubes or uterus.

The abdominal aorta was smooth.

No changes were noted in the calvarium, meninges or brain.

When the femoral vein was examined, no thrombi were found. There were large thrombi in the varicose vein on the inner aspect of the right tibial region. A thrombus was found in the right internal saphenous vein and a broken off end was detected. When this thrombotic mass with the vein was examined, the mass was found to show the structure of a thrombus and the vein showed phlebitis.

The diagnosis was: (1) varicose veins; (2) phlebitis and thrombosis of the right internal saphenous vein; (3) pulmonary embolism.

1119 National Bank Building.

New and Nonofficial Remedies

ALPHA-LOBELINE

Preliminary Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following statement. W. A. PUCKNER, Secretary.

Under the name "Alpha-Lobelin," Ernst Bischoff Co., Inc., markets a solution of the hydrochloride of the alkaloid alpha-lobeline isolated from Lobelia by Wieland. The product is manufactured by C. H. Boehringer Sohn, Hamburg, Germany, and marketed in ampules stated to contain, respectively, 1/6 grain and 1/20 grain of alpha-lobeline hydrochloride. The product was submitted to the Council with the claim that its use was indicated in "asphyxiations, shocks and poisoning where there is central respiratory depression." It has been very extensively advertised to the medical profession for some time, with claims that are extravagant, often bordering on the sensational. The evidence as to the value and safety of the product is still so incomplete that the Council has been unable to reach a definite conclusion in regard to it.

It would serve no useful purpose to endeavor to analyze and evaluate the many incomplete and usually uncritical clinical reports which have appeared, but attention may be called to a circular issued by the American distributors containing a "Partial List of Hospitals using Alpha-Lobelin" and to the paper entitled "The Pharmacological and Therapeutic Properties of Alpha-Lobelin. A Comparison of Its Action on the Respiratory Center with That of Other Respiratory Stimulants," by Drs. Victor H. Norris and Soma Weiss (from the Thorndike Memorial Laboratory of the Boston City Hospital; published in the *Journal of Pharmacology and Experimental Therapeutics* **31**:43, 1927).

The "Partial List of Hospitals using Alpha-Lobelin" referred to contains the names of 183 hospitals and institutions in the United States and Canada.

In order to learn something as to the experience of some of these hospitals with the drug, letters were written to twenty-seven of the more prominent of them; these hospitals are located in many different states and cities. No reply was received from ten of the hospitals; three stated that the drug had not been used at all; two that they had not had sufficient experience with the drug to give an opinion as to its usefulness; another that they were unable to state how much benefit was derived from its use; another [large] hospital reported that one of their physicians had used it as an incidental treatment in two cases of pneumonia which were in a hopeless condition when he first saw the cases; another stated that it had been used in cardiac failure with no beneficial results; another that it had been used twenty-four times in moderate asphyxia neonatorum or markedly delayed breathing and that with the exception of one case they had not been able to attribute any beneficial results directly to the drug; another reported that they had used it only in new-born infants and had not found it of any striking value; another stated that during the last two years it had been used occasionally "apparently with good results." A physician in another hospital reported: "I observed the administration of alpha-lobelin in three new-born babies, in one of whom the respiration was faint and the administration of alpha-lobelin did not produce any appreciable effect; in the second baby, who did not breathe for about five minutes after birth with artificial respiration, the breathing started promptly after the administration of alpha-lobelin; in the third baby, whose respiration was superficial and irregular, the breathing stopped within twenty minutes after the administration of lobelin. Whether in the last baby alpha-lobelin hastened the death or not, I cannot say. In the adult patients on whom I obtained tracings of respiration, alpha-lobelin did not have any appreciable effect on the respiration." The same physician continues: "I observed vomiting in man after 10 mg. injected subcutaneously. One patient who showed no effect (respiration, blood pressure, etc.) from 10 mg., showed repeated projectile type of vomiting from 20 mg. subcutaneously injected." Another hospital reported that the drug had been used, though not extensively, in cases of delayed respiration in new-born babies and that it was the "general impression" that it had been beneficial in the majority of cases, but that the effect of the drug was not carefully controlled; another reported that they had had excellent results (in new-born infants who failed to breathe) in several cases, the observations being based on general clinical impressions; another hospital reported that it had been used in 122 cases with satisfactory results in the majority of cases and that as far as was ascertainable, no ill results were noted. Inquiries made at another hospital included in the firm's list elicited the reply that the drug had been used in just one case, and that the patient died shortly thereafter. Finally, a report from another hospital on the use of Alpha-Lobeline as a respiratory stimulant in thirty-five cases stated that "in all cases there resulted increased depth of respiration and frequently increased rate . . . observable in from thirty-five to seventy-five seconds after hypodermic injection. No untoward result has been observed, but when repeated doses have been necessary, after the third or fourth dose the drug appeared to lose its efficacy. Volumetric tests not made, only a careful clinical observation of the cases. Claims are made that the volume of respiration is increased five or six times. I should judge it to be two or three times."

Thus, while the reports of some of these hospitals are favorable to the use of the drug (although it cannot be said that they are at all conclusive), it is evident that the circular containing this list of hospitals "where the drug is being used" gives an erroneous impression as to the extent of its use and of the results to be expected.

The paper by Norris and Weiss represents the most complete and critical report, both experimental and clinical, which has appeared on the subject. Those interested should read this paper; only some of their "conclusions" can be quoted here.

"1. The pharmacological properties of alpha-lobelin are essentially the same as those of the amorphous impure alkaloids, or extracts of the lobelia inflata.

"3. The emetic, respiratory and vasomotor actions of alpha-lobelin are similar to those of nicotin.

"7. In man the subcutaneous and intramuscular administration of the drug in ether coma, in respiratory depression induced by morphin, in alcohol and veronal poisoning was unreliable, and occasionally associated with vomiting, sneezing and various types of respiratory disturbance.

"8. Carbon dioxid and oxygen mixture was a more efficient and safer respiratory stimulant than alpha-lobelin."

In connection with the first of the foregoing conclusions ("The pharmacological properties of alpha-lobelin are essentially the same as those of the amorphous impure alkaloids, or extracts of lobelia inflata"), attention may be called to the fact that Wieland's earlier work, which is always quoted by the firm as being the basis for its use of the drug, was done with the older amorphous lobeline. The experiment most frequently quoted to show the lack of an emetic action of alpha-lobeline is one in which 12 mg. caused no vomiting in a large cat; but Edmunds had shown seventeen years earlier that whereas small doses (from 0.5 to 5.0 mg.) of lobeline caused violent vomiting in cats, this symptom was much less marked with larger doses (from 15 to 30 mg.)—an observation confirmed by Norris and Weiss (who also suggest an explanation of the phenomenon). Curtis and Wright, like Norris and Weiss, have emphasized the resemblance between the action of alpha-lobeline and nicotine. Iwasaki found, in animal experiments, lobeline to be inferior to epinephrine and atropine in morphine poisoning; Gun, working on rabbits, got favorable results in morphine poisoning, but harmful result after chloroform.

Since adequate evidence for the therapeutic usefulness of alpha-lobeline is lacking at the present time, the Council has postponed definite action in regard to the eligibility of the drug for inclusion in New and Nonofficial Remedies.

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SATURDAY, AUGUST 27, 1927

SOME RECENT OBSERVATIONS ON FAT-SOLUBLE VITAMINS

The current widespread interest in the therapeutic and prophylactic use of the fat-soluble vitamins, notably as they are available in cod liver oil and concentrates prepared from it, makes timely every reference to their possible limitations or alterations in efficacy. We have already referred to the suggestion of Hart, Steenbock and others [1] that the concentrate of vitamins A and D represented by the nonsaponifiable fraction of cod liver oil is not effective in herbivora unless it is fed dissolved in oil. More recent studies of Daniels and Brooks [2] at the Child Welfare Research Station of the University of Iowa confirm these observations in the case of an omnivorous species. The outcome makes one question the advisability of attempting to supply the vitamins to man in the form of dry concentrates unless the latter are given in oil or in close proximity to a meal that carries fats.

The ready solubility of vitamins A and D in fats of various sorts has made it seem likely that liquid petrolatum would also be a good solvent. The latter, however, is not absorbed from the gastro-intestinal tract. As liquid petrolatum has a widespread use as a laxative in persons of all ages, it is important to ascertain whether the fat-soluble vitamins in the food are liable to be "diverted" from alimentary absorption by the presence of the nonabsorbable liquid petrolatum solvent. The recent investigations of Dutcher and his collaborators [3] at the Pennsylvania State College leave no doubt that liquid petrolatum may act as a solvent for vitamin A, thereby depleting ingested foods of their supply of this factor. A comparable influence on the antirachitic vitamin has not yet been demonstrated, though it may naturally be expected if liberal amounts of liquid petrolatum are ingested. There are possibilities of deprivation not to be overlooked in the case of habitual users of liquid petrolatum in abundance.

The demonstrated ease of developing antirachitic potency in many foods by subjecting them to ultraviolet irradiation or even to direct sunlight has raised the question of increasing the vitamin D content of cod liver oil in a similar manner. The actual experiment has been tried by several investigators, most recently by Daniels and Brooks.[4] The evidence indicates that irradiation of cod liver oil does not increase its antirachitic potency.

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2. Daniels, Amy L., and Brooks, L. H.: Influence of Feeding Mixture on the Antirachitic Potency of Cod Liver Oil Concentrates, Proc. Soc. Exper. Biol. & Med. **24**: 972 (June) 1927.

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PENALTIES OF OBESITY

These are days of discomfiture in many respects for persons who are currently classed as overweight. They soon find that the arbiters of fashions in dress militate against their size in ways that place the obese under a variety of disadvantages in the selection of clothes. The cult of fashion scorns even small excesses of body weight without the slightest apparent justification. Accordingly, devotees of fashion resign themselves to the prevailing mode and cultivate a sylph-like figure with a devotion that not infrequently involves extreme abstemiousness in the direction of diet. Perhaps it is merely a passing fad that looks askance at even moderate plumpness. Nevertheless, abhorrence of undue fat is today a characteristic American vogue.

The discomfiture of those who are obese does not end with the seemingly trivial considerations of popular momentary sentiment that have just been mentioned. The carriers of superfluous adipose tissue are frequently reminded that the statistics of the life insurance companies unmistakably place the overweight person in the class of "poorer risks." The prospect of premature fatality is even more disconcerting to the average life-loving individual than are the animadversions of the arbiters of good form. And as if the general adverse outlook of the heavyweight were not sufficiently discouraging, he is specifically reminded from time to time that certain maladies, notably diabetes, exhibit an almost malevolent predilection for the obese. While the latter would, as a rule, be reluctant to admit any unusual shortcomings in agility or mental acumen, Chicago investigators [5] have recently challenged the muscular fitness of obese persons. Thus a comparison, at the Nelson Morris Institute for Medical Research, of overweight, "normal" and underweight persons showed only slight deviations from the expected standards of the basal metabolic rate. However, inequalities of performance promptly appeared as the result of muscular work. When this was uncomplicated with fatigue, the average percentage increase in heat production due to the effort was 368

for the obese, 226 for the normal, and 323 for the underweight. When fatigue resulted, the differences were even more striking. Furthermore, the mechanical efficiency is always lowest in the obese, thus adding the undeserved odium of an inadequate reward for hard work.

To cap the climax of an unpleasant report, it is said that obesity is attended with a noticeably decreased endurance that can be reliably recorded. Surplus fat must apparently find championship elsewhere than in the human species. Whether obesity is due to laziness and overnutrition or to some obscure derangement of the endocrine organs—either of which etiologic factors may represent a contribution of heredity—the American of today is likely to reject its advances as far as he comfortably can.

MUSCLE GLYCOGEN

The maintenance of a uniform content of the sugar glucose in the circulating blood is now recognized to be a matter of paramount moment to the body. Either an excess or a deficiency of the circulating carbohydrate may be attended with disastrous consequences for the organism. From the standpoint of ascertaining the factors responsible for averting both hyperglycemia and hypoglycemia it becomes important, therefore, to discover the methods by which sugar is mobilized in the body—how the content in the blood is replenished or decreased as the need may arise. Part, at least, of the secret is bound up in the rôle of glycogen in the body. More than half a century ago Claude Bernard showed that glycogen formation, glycogenesis, takes place very rapidly when an abundance of sugar becomes available; and the reverse process of glycogenolysis, with formation of glucose, is supposed to occur with equal ease.

For the liver, these processes have been well established. This organ may store as much as 300 grams (10 ounces) of glycogen readily subject to the reversible changes. It is easy to deplete the hepatic store of glycogen by any of a number of procedures that tend to lower the sugar content of the blood. The second large repository of glycogen is found in the muscles, and it likewise has generally been regarded as available for reconversion into blood sugar in times of hypoglycemic stress.

Recently, however, considerable doubt has been cast on the availability of the glycogen deposits of the muscles for the replenishment of diminishing blood sugar. The rapid development of hypoglycemic symptoms in animals after removal of the liver, in spite of the presence of appreciable amounts of glycogen in the muscles, led Bollman, Mann and Magath [1] of the Mayo Clinic to the conclusion that muscle glycogen cannot be broken down to glucose with sufficient rapidity to maintain the blood sugar at the normal level. Hence they looked on the liver as the prime factor in such sugar formation from glycogen. Similar views have been promulgated by the department of physiology at the University of Toronto, notably as the result of the recent experiments by Soskin.[2] They indicate that glycogen once deposited as glycogen in the muscles cannot be returned as sugar to the blood. The liver, in the absence of food, is therefore the sole source of supply for glucose in the blood. It may be asked at once what function the muscle glycogen performs. It is known to be decreased during muscular contraction both in the intact and in the isolated muscle. According to Soskin, the only pathway of glycogen to usefulness, in the muscle, is through lactic acid.[3] If this is produced in excess, some may enter the blood stream and be reconverted to glycogen in the liver. It represents a great step in advance if the proof becomes convincing that muscle glycogen and liver glycogen play distinctive parts in the body economy.

1. Bollman, J. L.; Mann, F. C., and Magath, T. B.: Am. J. Physiol. 74: 238 (Oct.) 1925.

DIAGNOSTIC METHODS IN WHOOPING COUGH

It has been more than twenty years since Bordet and Gengou made the pioneer announcement of the cultivation of *Bacillus pertussis* from patients with whooping cough. This ought to be a sufficient period for the establishment of confidence in the etiologic significance of the micro-organism in question. In several diseases, notably diphtheria, the identification of the causative agent serves important purposes not only in diagnosis but also in following the progress of the malady and particularly its infectivity. Modern medicine has fortunately discovered that dependence on classic clinical symptoms may sometimes leave the observer in the lurch unless he is prepared to supplement the more conventional procedures with the refinements of present-day technic. The "carrier" is a potential menace despite his freedom from readily observable symptoms of disease; consequently the bacteriologist contributes the possibility of hygienic safety when he discovers infectious germs lurking anywhere in the bodies of apparently healthy persons. Likewise a service is rendered to the physician when a bacterial culture enables him to perfect an otherwise difficult differential diagnosis.

Considerations of this sort are voiced in a recent article by Lawson and Mueller.[4] This stresses the value of cultures in relation to whooping cough, a disease that still receives all too tolerant consideration; indeed, it continues to remain in the group of maladies of childhood which, like measles and chickenpox, were once regarded as an inevitable nuisance of the adolescent years. There are periods when the decision between incipient whooping cough and a common cold

2. Soskin, S.: Muscle Glycogen as a Source of Blood Sugar, Am. J. Physiol. 81: 382 (July) 1927.
3. Lactic Acid and Muscular Function, Current Comment, J. A. M. A. 86: 1217 (April 17) 1926; Phosphates and Fatigue, ibid. 87: 1562 (Nov. 6) 1926.
4. Lawson, G. M., and Mueller, Mary: The Bacteriology of Whooping Cough, J. A. M. A. 89: 275 (July 23) 1927.

in children is not easily made. Lawson and Mueller extol the value of cultures taken from such patients as an added aid in early diagnosis. They assert that carriers, second cases, and suspected cases in which the children never whoop and would otherwise remain undetected, may be diagnosed by bacteriologic studies. In fact, during the catarrhal stage of the disease, positive cultures may be obtained with considerable regularity.

Practical bacteriology in whooping cough also may be more helpful in the official management of the disease. Lawson and Mueller urge that the existing quarantine requirements should be so changed as to include the catarrhal stage of the infection. Furthermore, in their judgment cultures should be taken at weekly intervals throughout the disease, and when a negative culture is secured it should be checked by three cultures taken on successive days. If these are negative, the patient may safely be released from quarantine. The logic of this is appealing. At any rate, it seems far more rational than either the customary empiric rules or the haphazard guesses of the past.

Current Comment

SMALLPOX AND CHICKENPOX

The difficulty of differential diagnosis of smallpox and chickenpox has increased in recent years, because widespread vaccination of the population has reduced the opportunity to see cases of smallpox. Suggestions to aid in such differential diagnosis, and recorded in THE JOURNAL recently, are those of Hulshoff Pol,[1] Jaksch-Wartenhorst,[2] Sahli[3] and Painton.[4] J. W. Tomb,[5] chief sanitary officer of the Asansol Mines board of health, Bengal, India, has noted that the time interval between the date of onset of fever and the date of outbreak of eruption is dependably significant. In the mining settlement of Asansol the colliery doctor babus were reporting all cases of sickness with vesicular eruption as chickenpox, although it was known that for many years smallpox had caused severe economic loss in the province. To remedy the resulting inaccuracy, an order was issued to report all cases of sickness with vesicular eruption as "smallpox" and to give, in addition, the dates of onset of fever and of outbreak of eruption. Analyses of many hundreds of such reports showed that in chickenpox the time interval between the onset of fever and the beginning of the eruption never exceeded twenty-four hours, while in smallpox this period always exceeded forty-eight hours. Proof that this distinction is important was obtained in 1925-1926, when smallpox was epidemic in Bengal. At that time 65,795 of the inhabitants of Asansol were revaccinated, with success in 77 per cent. Ninety-four persons who had had chickenpox, as diagnosed by the time interval method, were also revaccinated, with success in 75 per cent. In the cases of 108 persons who had suffered from a disease diagnosed also by the time interval method as smallpox, revaccination was unsuccessful. This method of diagnosis would not be dependable in that alleged form of mild smallpox called alastrim, in which a vesicular eruption occurs without fever or malaise. However, as Tomb points out, if such cases do occur they are without importance in public health work as they do not cause either morbidity or mortality. In his hands, differential diagnosis by the method outlined has proved "simple, accurate and unambiguous."

1. Hulshoff Pol, D. J.: Smallpox or Chickenpox, Nederl. Tijdschr. v. Geneesk. **2**: 758 (Aug. 14) 1926; abstr. J. A. M. A. **87**: 1345 (Oct. 16) 1926.
2. Jaksch-Wartenhorst, R.: Smallpox, Chickenpox and Cowpox, Med. Klin. **21**: 497 (April 3) 1925; abstr. J. A. M. A. **84**: 1705 (May 30) 1925.
3. Sahli, H.: Smallpox and Chickenpox, Schweiz. med. Wchnschr. **55**: 1 (Jan. 1) 1925; abstr. J. A. M. A. **84**: 712 (Feb. 28) 1925.
4. Painton, G. R.: Diagnosis of Smallpox and Chickenpox, Brit. M. J. **2**: 1080 (Dec. 8) 1923; abstr. J. A. M. A. **82**: 245 (Jan. 19) 1924.
5. Tomb, J. W.: The Differential Diagnosis of Smallpox and Chickenpox, Indian M. Gaz. **62**: 199 (April) 1927.

THE TOXICITY OF BILE

The literature of physiology contains a number of confusing and contradictory statements regarding the behavior of the bile in the body. Some of them have been corrected through the progress of scientific investigation. For example, it was formerly assumed that the bile acts as an antiseptic in the alimentary tract. This conclusion was based on the observation that, when the liver secretion is in some way excluded from the digestive canal, the feces are likely to exhibit an exceptionally putrefactive character. A quite different, and apparently more cogent, explanation of this phenomenon has, however, been formulated to supplant the older view. The bile is essential to the proper digestion and absorption of fats. Fat digestion is intimately associated with the digestion of the other food materials. As Bodansky[1] has recently expressed it, the formation of a layer of undigested fat around food particles diminishes the amount of surface exposed to the action of enzymes. As a result, in the absence of bile, a relatively large amount of undigested or partially digested food finds its way into the large intestine, where it is likely to undergo putrefactive changes. The bile therefore diminishes such processes not by virtue of any antiseptic power but rather because it aids digestion and perhaps also because of some laxative potency. Similarly, our views regarding the toxicity of bile are being revised. A recent statement in THE JOURNAL[2] gave utterance to the frequently expressed belief that the bile pigments are toxic. Bilirubinemia is thus represented as an undesirable condition that is remedied when the pigment combines with calcium to form a less noxious product. According to studies of Horrall,[3] however, bilirubin is nontoxic and apparently inert. On the other hand, whole bile is toxic when introduced into the body intraperitoneally, subcutaneously or intravenously—that is, by any route other than the alimentary tract. According to Horrall the pure bile acids are nontoxic, the objectionable components being the salts of the bile acids, such as sodium

1. Bodansky, M.: Introduction to Physiological Chemistry, New York, John Wiley and Sons, 1927, p. 130.
2. The Relation of Calcium and Bilirubinemia to Intoxication with Carbon Tetrachloride, editorial, J. A. M. A. **88**: 2036 (June 25) 1927.
3. Horrall, O. H.: Toxicity of Bile, Am. J. Physiol. **81**: 486 (July) 1927.

glycocholate and sodium taurocholate. Of course, the bile can exert indirect effects on the blood that also need to be taken into account. In any event the time has arrived for a more critical consideration of some of the current statements about the behavior of bile, just as our conceptions as to its origin in the body have been completely revised of late.

REVISING THE PHARMACOPEIA

Apparently some misunderstanding as to the exact nature of the United States Pharmacopeia has given opportunity for criticism of the work of the Revision Committee, particularly of the Subcommittees on Scope and Nomenclature. In a recent statement, Dr. Horatio C. Wood, Jr., replies specifically to the charges of Dr. H. H. Rusby that the committees have departed from the original principles of the Pharmacopeia. Dr. Rusby has insisted that the committee recommends to the medical profession drugs for which it possesses a special favoritism and has created a false belief in foreign countries to the effect that drugs not in the Pharmacopeia are not used in this country. Dr. Wood rightly dismisses the second charge as preposterous and ludicrous. He takes exception, furthermore, to the dictum of Dr. Rusby that only insufficient use can justify the exclusion of a drug. The first edition of the United States Pharmacopeia, published in 1820, expressed the purpose of selecting from among the substances used in medicine those remedies most worthy of medical employment. To any one at all familiar with the progress of the U. S. Pharmacopeia, it is obvious that it tends more and more to become a scientifically reliable work, to realizing more and more greatly the necessity for established proof of virtue before admission can be granted. The work of Dr. Horatio C. Wood, Jr., as chairman of the Subcommittee on Scope, which was mainly responsible for additions and deletions, and as a member of the Subcommittee on Nomenclature, has been of outstanding importance in achieving this aim.

OCCURRENCE OF ARGININE IN THE URINE

The problems of protein metabolism have of late become more directly identified with the behavior of the protein disintegration products, the amino-acids, in the body. This interpretation of the physiologic rôle of the nitrogenous nutrients in terms of the formation and fate of the protein catabolites has made it far easier to understand certain anomalies that have long been recognized. For example, cystinuria has come to represent an abnormal condition in which the sulphur-bearing amino-acid cystine is present in the urine because of some failure in its characteristic metabolic transformation. Alkaptonuria likewise represents a comparable inadequacy in the oxidative disintegration of characteristic aromatic groups in the protein molecule, such as tyrosine. It will no longer be surprising if other amino-acids should be discovered to escape catabolism in the body under certain circumstances and thus be excreted unchanged through the kidneys. In 1911 lysine was isolated from the urine of a cystinuric patient by Ackermann and Kutscher [1] and its chemical identity clearly established. During the present year F. A. Hoppe-Seyler [2] has separated the characteristic amino-acid arginine from the same patient, thus establishing this substance for the first time as a possible abnormal urinary constituent in man. All these observations suggest that in the disorder heretofore designated as cystinuria there may be present a more generalized metabolic disturbance than one involving the oxidation of cystine alone. In other words, the cystinuric person may excrete unchanged a variety of amino-acids that are completely disintegrated and oxidized in the normal organism. In this connection it may be recalled that the diamines putrescine and cadaverine, derivatives of arginine and lysine, respectively, have been found also in the urines of certain patients exhibiting cystinuria. The possible interrelationship of all these phenomena is not yet clear.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Governor Young has appointed all of the old members of the state board of health to the new state board of public health, under whose control is placed the new state department of public health.——Col. Harry X. Cline, Los Angeles, Medical Reserve Corps, has been ordered to active duty, September 1, at Carlisle Barracks, Pa., for a course of instruction to continue until about October 15.

Infantile Paralysis Increases. — During the week ending July 30, sixty-two cases of infantile paralysis were reported to the state department of public health, which is considered an unusually large number. Health officers have been advised to keep the public informed, as a disastrous outbreak may occur. The state department published in its July 30 bulletin a summary of methods in use to control infantile paralysis. There was an extensive epidemic in California two years ago.

Director of Health of Oakland Appointed.—Dr. Frank L. Kelly, lecturer in preventive medicine and hygiene, University of California Medical School, has been appointed director of public health of the city of Oakland. Dr. Kelly graduated from the medical school of the university in 1912, and obtained a certificate of graduate in public health in 1915. Formerly, he was bacteriologist, director of the bureau of communicable diseases, and epidemiologist for the state board of health. He will continue his state work in an advisory capacity, and his work at the university in conjunction with his new position.

Dr. Porter Appointed Dean.—The board of regents of the University of California has endorsed the appointment of Dr. Robert Langley Porter, San Francisco, as dean of the medical school of the university to relieve Dr. Lionel S. Schmitt, who has been acting dean for several years. Dr. Porter, at present in Rome, has been notified of his appointment, effective September 1, and the president of the university has received his promise to accept the position. Dr. Porter is a graduate of the Pennsylvania Military College; the Cooper Medical College, San Francisco; a member of the Royal College of Surgeons, England, and licentiate of the College of Physicians, London. He was clinical professor of medicine and pediatrics at the Stanford University School of Medicine, 1908-1918, and since then clinical professor of pediatrics at the University of California Medical School, with the exception of the last two years, which have been spent in study in Rome.

1. Ackermann, D., and Kutscher, F.: Ztschr. f. Biol. **57**: 354, 1911.
2. Hoppe-Seyler, F. A.: Ueber Vorkommen und Nachweis des Arginins im Cystinurikerharn, Deutsches Arch. Klin. Med. **154**: 97, 1927.

COLORADO

Society News.—Dr. Allen K. Krause, associate professor of medicine, Johns Hopkins University School of Medicine, Baltimore, addressed the Arkansas Valley Medical Association, Canon City, in July, on "Trend of the Medical Profession and the Medical Treatment of Tuberculosis." Among other speakers was Dr. Casper F. Hegner, Denver, whose subject was "Comparison of the Various Empyema Operations."

State Board Reorganized.—At the July meeting of the Colorado State Board of Medical Examiners in Denver, the board was reorganized as follows: D. L. Clark, D.O., Denver, president; Dr. Elbert B. Swerdfeger, Denver, vice president, and Dr. Philip Work, Denver, secretary-treasurer. The other members are Dr. Frank R. Spencer, Boulder; Dr. William W. Williams, Denver; Dr. Vardry A. Hutton, Florence; Dr. Henry R. McGraw, Denver; Dr. John G. Locke, Denver, and Rodney Wren, D.O., Pueblo.

INDIANA

"Medical Frolic" and Annual Golf Tournament.—On the opening night of the annual meeting of the Indiana State Medical Association, a two act play entitled "The State Medical Frolic," cast by artists of the Indianapolis Medical Society, will be presented at the Atheneum, Massachusetts Avenue and Michigan Street, Indianapolis, 8:15 p. m. It is a burlesque on the physician's life in office and hospital. The annual golf tournament of the state medical society will be played, September 28, also, at the Indianapolis Country Club, beginning at 10 a. m., so that members of the house of delegates may take part. All other golfers will start play at 12 o'clock. Members who wish to compete for prizes should send their club handicaps to Dr. Charles A. Weller, Hume-Mansur Building, Indianapolis, chairman of the golf committee; in case they do not belong to a golf club they should send their five lowest scores not later than September 10.

IOWA

Upper Des Moines Medical Society.—A meeting was held by this society at Lake Okoboji, August 11. In the morning there was a chest clinic sponsored by Drs. Smith and Coldren of Milford. Dr. Merrill M. Myers, president, Iowa Heart Association, demonstrated cases, and gave an address on heart disease. Dr. John H. Peck, president, Iowa Tuberculosis Association, supervised the "lung division." In the afternoon, papers were read by Dr. Roland W. Stahr, Fort Dodge, on "Diabetic Acidosis in Childhood"; Dr. Chester A. Stewart, Minneapolis, "Immunization Against Scarlet Fever and Diphtheria"; Dr. Fred M. Smith, Iowa City, "Treatment of Pernicious Anemia with Special Reference to Diet"; Dr. Walter L. Mendenhall, Boston, "Action of Some Expectorants," and Dr. Maurice B. Bonta, Rochester, Minn., "Common Diseases Affecting the Blood." Dr. James B. Knipe, Armstrong, vice president of the society, who presided at the banquet, introduced the president of the Iowa State Medical Society, Dr. Michael J. Kenefick, Algona, and others, whose talks were interspersed with especially prepared entertainment.

KANSAS

Personal.—Dr. Karl A. Menninger, Topeka, will give an address during the annual meeting of the American Bar Association, Buffalo, August 30, on "Medicolegal Proposals of the American Psychiatric Association."

Society News.—The Sedgwick County Medical Society held a clinic, July 19, at the St. Francis Hospital, Wichita. The morning was devoted to medicine and the afternoon to surgery; the clinicians were members of the staff of the hospital. In the evening, following a dinner at the Lassen Hotel, papers were read by Drs. James W. Cheney, Edwin D. Ebright and Thomas T. Holt, all of Wichita.

County Society Holds Public Meeting.—The Stafford County Medical Society held an open air meeting, July 13, at the home of Dr. John T. Scott, St. John, to which the public was invited. Every trade, profession and business, the secretary reports, was represented. The guests were Dr. Horace C. Embry, Great Bend, whose subject was "Surgical Evaluation of Abdominal Pain"; Dr. Marion Trueheart, "Radium," with lantern demonstrations; Dr. Harry R. Ross, "Humorous Readings," and Dr. Maggie L. McCrea, all of Sterling. This public meeting was considered so successful that another was arranged to be held in August. It proved conclusively, the secretary states, that the public is interested in such programs.

LOUISIANA

Health at New Orleans.—Telegraphic reports to the United States Department of Commerce from sixty-seven cities with a total population of about 30 million, for the week ending August 13, indicate that the highest mortality rate (17.0) was for New Orleans, and that the mortality rate for the group of cities as a whole was 10.5. The mortality rate for New Orleans for the corresponding week last year was 17.8, and for the group of cities, 10.6.

Four New Health Units.—The state health officer, Dr. Oscar Dowling, announced, August 6, it is reported, that details have been arranged for the establishment soon of health units in Concordia, La Salle, Ascension and Morehouse parishes, and that financial assistance will be given by the state board of health and the Rockefeller Foundation. Each unit, it is said, will have a physician, a public health nurse, a sanitary inspector and a stenographer.

MASSACHUSETTS

Personal.—Dr. Charles P. Sylvester, Boston, has been appointed chairman of the state board of registration in medicine to succeed Dr. John M. Birnie, Springfield, who resigned following his election to the presidency of the Massachusetts Medical Society.——Dr. Louis E. Wolfson, Boston, addressed the North Shore Medical Fraternity at Lynn, June 2, on the "Relation of Bronchoscopy to General Medicine." The annual outing of the society was held, June 22, at the Walker Gordon Farm, Needham.——Dr. Harvey Cushing, professor of surgery, Harvard University Medical School, Boston, delivered the first memorial lecture at the University of Glasgow, Scotland, recently, of the MacEwen Memorial Lectureship. This lecture was founded to commemorate the life of the late Sir William MacEwen, professor of surgery at the University of Glasgow from 1892 to 1924.

Physical Therapeutics Clinic Opens.—The directors of the Reconstruction Clinic, 366 Commonwealth Avenue, Boston, will open the department of physical therapeutics to the public three evenings a week, beginning September 2. It was decided to take this step because of (1) the abuse by nonmedical men of physical therapeutics; (2) the lack of facilities in Boston for the treatment of diseases with physical therapeutic agents, and (3) in order to benefit those who cannot leave their work to seek relief. The evening clinics will be conducted by regular members of the staff who have volunteered their services free, and physicians interested are invited to the clinic to observe the application of physical therapeutic measures; there will be no fee for attendance. Physicians expecting to attend should communicate with the secretary, Dr. Evelyn G. Mitchell. Medical treatment will be extended to persons of limited means only, irrespective of race or religion. No person able to pay more than $1 per treatment will be eligible.

MICHIGAN

Personal.—Dr. John B. Youmans, assistant professor of internal medicine, University of Michigan Medical School, Ann Arbor, has resigned to accept an appointment as assistant professor of medicine, Vanderbilt University School of Medicine, Nashville, Tenn.——Dr. Dorothy L. Green, Lansing, who has been making a study of puerperal deaths in Michigan at the request of the state medical society, is leaving the state department of health to take special work at Bellevue Hospital, New York; she will later enter private practice.

Health Education Service.—Organized in 1922, under the auspices of the joint committee on public health education, the Michigan Health Education Service has steadily grown. The number of assignments of speakers and the attendance on lectures last year exceeded that of any preceding year. The number of requests for lectures exceeded the supply of speakers, and to meet the increasing demand additions to the staff of speakers for next year are needed. During 1926-1927, a series of coordinated lectures for high school assembly programs was organized and given in eighty-nine high schools. Every one of these schools has requested a continuation of the service next year. In some of these schools, students were required as a part of their work in English to make reports of the health lectures. Many of these reports show that the students understood the material as presented and appreciated the service. Health lectures were given also throughout the state under the auspices of parent-teacher associations, church organizations, women's clubs and other organizations. A list of physicians who gave lectures appears in the August journal of the state medical society.

NEW YORK

Cattaraugus County Society Desires Demonstration to Withdraw.—At a special meeting of the Cattaraugus County Medical Society, Olean, August 4, called to consider the report of the committee on public health and public relations, the following resolution was adopted:

Resolved, That the Cattaraugus County Medical Society go on record as desiring the withdrawal of the Milbank Demonstration from this county and opposing any request for its continuation after the termination of this year; that the Cattaraugus County Medical Society go on record as favoring and supporting a county board of health, conducted on a modest and practical scale, and operated without interference from the State Charities Aid Association or other unofficial bodies; that the Cattaraugus County Medical Society, while expressing its appreciation to the Milbank Memorial Fund for its Cattaraugus County effort, records its opinion that this experiment has demonstrated the ineptitude of lay bodies to bring about properly the transfer of the theoretical to the practical.

The committee on public health and public relations previously had made a survey obtaining the opinion of fifty-two of the sixty-four practicing physicians in the county by means of a questionnaire mailed by and returned to a notary public. Of the fifty-two replies, thirty-eight expressed the opinion that a continuation of the demonstration was not desired, while twelve definitely favored its continuation. Thirty-five physicians stated definitely that the present demonstration was pauperizing the public; thirty-two believed that the demonstration was lessening the respect for the practicing physician. The questionnaires showed that the tuberculosis work of the demonstration, the laboratory and venereal disease clinics (activities which have been successful elsewhere, not experimental and not subject to unofficial interference) received much more approval than other phases of the work. In reporting to the society, the committee further analyzed the replies, and, in several paragraphs, expressed its own opinion. Some of these paragraphs start as follows: "We resent also the continuous campaign of glorification which has been a part of the present demonstration." "We disapprove of premature and overenthusiastic reports in general. We resent in particular reports reflecting directly or indirectly, purposely or otherwise, on the practicing physician." "We further feel that the county medical society should frown on efforts on the part of any organization to inject politics and political considerations into the public health situation in this county."

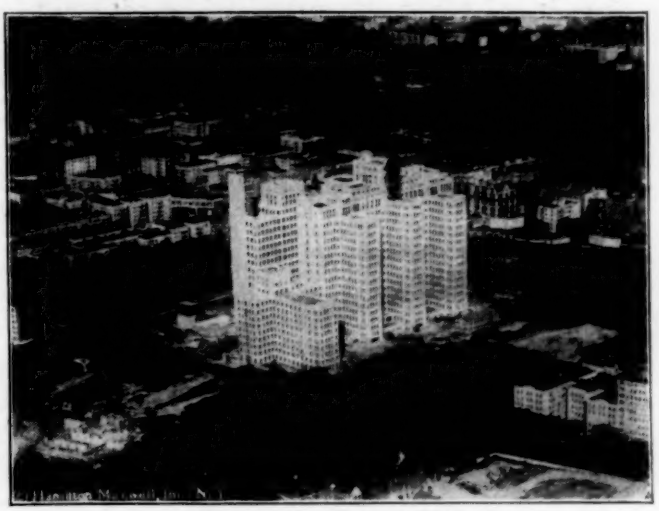
The Milbank Memorial Fund, and its agent, the State Charities Aid Association, the committee states, entered into some form of agreement with the county for a period of five years to supply part of the funds necessary for the activities which the county board of health would undertake, and also offered its services in the determination of the various activities and the amounts to be expended for each activity. The five year period expires at the end of this year.

New York City

Progress in Construction of Medical Center.—Several units of the great medical center which is under construction on Washington Heights probably will move into the new quarters beginning next spring. The joint administrative board of the medical center announces that those units which it is expected will move then are the Presbyterian Hospital, the Sloane Hospital for Women, the Squier Urological Clinic, the Harkness Pavilion and the Presbyterian Hospital School for Nursing. It is also expected that the College of Physicians and Surgeons of Columbia University will move in the fall of 1928.

New York State Psychiatric Institute and Hospital

All of these units are nearing completion. The general hospital building, a view of which is shown here, will house the Presbyterian Hospital, the Sloane Hospital and the Squier Urological Clinic, while the nine story building, adjacent and to the left of the central hospital group, is the Harkness Pavilion, which will accommodate the private patients of the Presbyterian and Sloane hospitals and of the Squier clinic. One floor of the pavilion will be a hotel floor with dining facilities for the accommodation of relatives and friends of private patients. The Sloane Hospital for Women will occupy three floors in the central group of sixty-five beds each, more than half of which will be in rooms of from one to four beds each. The Squier clinic will be on the ninth floor where there will be three solariums with quartz glass. The College of Physicians and Surgeons, and the outpatient department are under construction behind the central hospital group as shown here. The Vanderbilt clinic will occupy five



General Hospital Building at Medical Center

floors in the outpatient department, and the school of dental and oral surgery three floors. The picture below shows the progress made in the construction of the Presbyterian Hospital School of Nursing, the Anna C. Maxwell Hall, which overlooks the Hudson River. The New York State Psychiatric Institute and Hospital, shown in the first picture, is being rushed to completion with the hope it may be possible to move the unit from its present location on Wards Island in 1928. The steel work is completed, and several floors are

View from the west of the Anna C. Maxwell Hall. Main group of Medical Center buildings in background

already enclosed in brick. Another unit of the medical center, the Neurological Institute of New York, is expected to be under construction this fall. Still another unit, the Babies' Hospital, has not gone beyond the stage of plans. All these units are being constructed in a manner that will permit the maximum of cooperation.

OREGON

State Medical Meeting.—The fifty-third annual meeting of the Oregon State Medical Society will be at Salem, September 1-3, with headquarters at the Hotel Marion and under the presidency of Dr. Willis B. Morse, Salem. The governor, the mayor of Salem and the president of the Polk, Marion, and Yamhill Counties Medical Society, Dr. Lucian O. Clement, Salem, will give the addresses. Dr. Fred L.

Adair of the University of Minnesota, Minneapolis, will speak at the first general meeting on "Pathology of the Fetus and Newly Born Infant with Special Reference to the Cause and Prevention of Fetal and Newly Born Deaths." In the medical section, among others, Dr. Ray W. Matson, Portland, will read a paper on "Collapse Therapy of Pulmonary Tuberculosis," and Dr. Albert L. Mathieu, Portland, "Use of Iodized Oil as a Diagnostic Aid in Gynecology," and in the surgical section, Dr. Joseph A. Pettit, Portland, "Malignant Tumors of the Bones with Special Reference to the Maxilla," and Dr. Robert C. Coffey, Portland, "Rationale of Various Procedures in the Treatment of Cancer." Among the guest speakers will be Dr. Dean Lewis, professor of surgery, Johns Hopkins University School of Medicine, Baltimore, whose subject will be "Infections, Their Cause and Progress"; Drs. William P. Murphy and George R. Minot, Boston, "Treatment of Pernicious Anemia by Means of Diet Rich in Liver"; Dr. David Marine of Columbia University College of Physicians and Surgeons, New York, "The Thyroid Gland and Its Relation to Disease." The annual banquet will be Friday evening, and the third day of the session will be devoted largely to recreation, including golf and automobile trips. There will be a public meeting the first evening at the Elsinore Theater.

PENNSYLVANIA

Society News.—At the August meeting of the Cambria County Medical Society, Johnstown, the speakers were Congressman J. Russell Leech, Ebensburg, and Dr. James O. Wallace, professor of orthopedics, University of Pittsburgh School of Medicine, whose subject was "Internal Derangements of the Knee Joint."

New Board of Medical Licensure.—The recently reorganized board of licensure comprises Dr. Irvin D. Metzger, Pittsburgh, president of the board; Dr. Adolph Koenig, Pittsburgh; Dr. William M. Hillegas, Philadelphia; Dr. Merle V. Hazen, Harrisburg; Dr. Edgar M. Green, Easton; Dr. Theodore B. Appel, Harrisburg, state secretary of health, ex officio, and John A. H. Keith, superintendent of public instruction, ex officio.

Personal.—Dr. Theodore B. Appel, Lancaster, state commissioner of health, addressed a joint meeting of the Berwick, Bloomsburg and Danville Rotary clubs and the Bloomsburg Kiwanis Club, at the Hotel Berwick, Bloomsburg, July 22, making a plea for support of a better health program.——Lieut. Col. Charles M. Strotz, Philadelphia, Medical Reserve Corps, has been ordered to active duty, September 1, for a course of instruction at Carlisle Barracks to continue until about October 15.

Health Department Items.—The state department of health reports that the extension tuberculosis diagnostic clinics have been very successful. It states that thousands in rural districts most of whom were children, attended clinics which were frequently held in empty school rooms. The motorized laboratory accompanied the personnel about the state, in charge of Dr. C. C. Custer, assistant superintendent of Mont Alto Sanatorium, and under the supervision of Dr. W. G. Turnbull, deputy secretary of health. Dr. Turnbull said that only the unselfish cooperation of the local physicians in the various communities has made it possible for the state to do this work. Physicians and nurses accompanied the laboratory. Many of the children examined were sent to Cresson and Mont Alto and many of the adults were listed for the three sanatoriums. The milk division of the state department of health has completed an extensive investigation of milk-receiving stations in Ohio which ship milk for use in Allegheny County, Pennsylvania. Many unsatisfactory conditions have been remedied. The department has completed sanitary inspections of eighty-seven coal mining towns of Allegheny County, in which work the motorized laboratory was used to assist the personnel.

State Medical Meeting.—The seventy-seventh annual meeting of the Medical Society of the State of Pennsylvania will be at Pittsburgh, October 3-6. General meetings will be held at the University Club, and most of the section meetings at the Hotel Schenley. The mayor of Pittsburgh, Charles H. Kline, and the president of the Allegheny County Medical Society, Dr. Charles H. Henninger, will give addresses of welcome. Following the installation of the president elect, Dr. Arthur C. Morgan, Philadelphia, Dr. Jabez N. Jackson, Kansas City, Mo., President of the American Medical Association, will give an address. There will be symposiums on pernicious anemia, the application of radium and radon, rheumatic fever, physical therapy, diseases of the lung, orthopedic surgery, injuries to the knee and ankle joint, carcinoma of the rectum, surgery of the spleen, the poor surgical risk, cancer of the breast, the new-born, preventive pediatrics, urology in childhood, use of light therapy in children, tuberculosis of the skin and prostatic obstruction. There will also be clinics, demonstrations and conferences participated in by many prominent Pennsylvania physicians, and the following physicians from other states:

Alfred W. Adson, Rochester, Minn.	Arthur H. B. Hill, Cleveland
William H. Cameron, New York	Louis Hamman, Baltimore
Louis B. Newburgh, Ann Arbor, Mich.	John J. Moorhead, New York
Walter C. Alvarez, Rochester, Minn.	John M. Wheeler, New York
Donald C. Balfour, Rochester, Minn.	Herman L. Kretschmer, Chicago
Harold I. Lillie, Rochester, Minn.	Linnaeus E. LaFetra, New York
Henry F. Helmholz, Rochester, Minn.	George M. MacKee, New York

An attempt will be made at this meeting to organize a permanent state medical golf association. There will be a tournament at Pittsburgh to determine the champion of this association which will be a low score contest with no handicaps. A cup will be presented to the winner, and prizes awarded for the best net score and for the best match play against par handicaps. Applications to play should be mailed now to Dr. George J. McKee, Westinghouse Building, Pittsburgh. An opportunity will be provided to visit interesting places about Pittsburgh as part of the program of entertainment. The annual conference of the secretaries of the component county societies will be at the Hotel Henry, Tuesday, 5:30 p. m. Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, will address a public meeting at the University Club, Wednesday evening, at 8 o'clock.

TENNESSEE

Health at Memphis.—Telegraphic returns to the U. S. Department of Commerce from sixty-six cities with a total population of about 29 million, for the week ending August 6, indicate that the highest mortality rate (23.0) appears for Memphis, and that the mortality rate for the group of cities as a whole was 10.4. The mortality rate for Memphis for the corresponding period last year was 19.4, and for the group of cities, 10.6.

Dr. Mountin Assigned to State Health Department.—At the request of Dr. Eugene L. Bishop, state health officer, the U. S. Public Health Service has assigned Dr. Joseph W. Mountin to work with the Tennessee Department of Public Health for not less than one year to help systematize the work and place it on a basis of standard practice. Dr. Mountin is said to have served in the same capacity with the Missouri, Kansas and Oklahoma state health departments, and to have had about ten years' experience in the U. S. Public Health Service, including assignments at the Hygienic Laboratory at Washington, D. C.; quarantine work at Hampton Roads, Va.; hospital work in Boston, and sanitation in rural communities and in cantonments during the World War.

TEXAS

Student Applications Exceed Facilities.—The dean of the University of Texas School of Medicine reported, July 16, that about 175 applications for admission to the freshman class had already been received and that 100 applicants can be accommodated this year instead of sixty-five as heretofore, as a result of the remodeling and rearrangements of parts of the main building and the installation of new equipment. Freshmen will be accepted on the basis of scholarship, with preference given to Texans over students from other states. There are said to be no vacancies in the upper classes.

Poliomyelitis Victims Treated at Warm Springs.—It was announced, August 13, it is reported, that ten patients from Fort Worth, victims of infantile paralysis, will be given free treatments at Warm Springs, Ga., at the expense of the Warm Springs Foundation, which was sponsored by Mr. Franklin D. Roosevelt, formerly assistant secretary of the navy. The foundation is said to have a fund of $75,000 for developing the facilities for the treatment of this disease at Warm Springs, where Mr. Roosevelt himself is said to have been benefited.

WASHINGTON

Talk Campaign—One Hundred Topics.—As previously noted in THE JOURNAL, the Public Health League of Washington developed a plan whereby all citizens of the state could be reached by oral messages on health. The league secured the services of 248 speakers—physicians, dentists, nurses, dietitians and college instructors, and the "Talk Campaign," opened about June 17 at Olympia with Dr. Charles F. Engels, Tacoma, addressing the Rotary Club, on "An Age of Science." Dr. Harry G. Willard, Tacoma, president of the state medical society, addressed the Kiwanis Club at

Sheldon, July 26; his theme was the annual physical examination by the family physician to correct early defects in health. Talks were made at Seattle by Dr. Willard and by Dr. George C. Miller on "Feeblemindedness." The Kiwanis Club of Kennewick was addressed, July 12, by Dr. Le Grand Spaulding, whose theme was moderation for the man of middle age; he also urged annual physical examinations in another talk on "Why Men Break After Forty." The Kiwanis Club at Auburn was addressed by Dr. Charles C. Tiffin, Seattle, July 28; he predicted that goiter could be eliminated from the state by the cooperation of the public with physicians. The league sent out a list of subjects and speakers to clubs and other organizations, requesting them to devote at least two meetings a year to talks on health.

WISCONSIN

Personal.—Dr. Frank L. Weston has resigned from the student medical advisory staff at the State of Wisconsin General Hospital, Madison, to engage in private practice.—— Dr. Gilbert E. Seaman, Milwaukee, who recently went as a delegate to the Fourth International Congress on Military Medicine at Warsaw, Poland, received the insignia and certificate of "Honorary Graduate and Honorary Professor" of the Military Medical School of Poland at a formal review. Dr. Seaman went to Vienna from Warsaw to take up special work in internal medicine and neurology.

State Medical Meeting.—The eighty-sixth annual meeting of the State Medical Society of Wisconsin will be held at Eau Claire, September 21-23, under the presidency of Dr. Arthur W. Rogers, Oconomowoc, whose address will be given Wednesday evening at a public meeting in the high school auditorium. Dr. Arthur S. Loevenhart, professor of pharmacology and toxicology, University of Wisconsin Medical School, Madison, will speak at this meeting on "Patent Medicines." The Wednesday morning session will be devoted to public health. Dr. Samuel J. Crumbine of the American Child Health Association will read a paper on "A United Front for Child Health"; Dr. Waller S. Leathers, Vanderbilt University School of Medicine, Nashville, Tenn., on "Health Officer, Medical Profession and the Laity," and Dr. Robert S. Dinsmore, Jr., Cleveland, on "Practical Aspects of the Goiter Problem." Wednesday afternoon will be devoted to medicine, with Dr. Robert S. Preble, professor of medicine, Northwestern University Medical School, Chicago, speaking on "Mistakes in Medicine"; Dr. Elsworth S. Smith, St. Louis, on "Cardiovascular Renal Disease"; Dr. Peter Bassoe, Chicago, on "The Origin, Rise and Decline of the Neurasthenia Concept," and Dr. Walter C. Alvarez, Rochester, Minn., on "Physiology of the Gastro-Intestinal Tract." The surgical program Thursday morning will be a symposium on "The Aspects of Surgery in Industry"; the speakers will be Dr. Stanley J. Seeger, Milwaukee, on "Burns"; Dr. Harry E. Mock, Chicago, on "Physical Therapy and Industrial Surgery," and Mr. L. A. Tarrell, formerly of the Industrial Commission of Wisconsin, on "Estimation of Disability." Dr. Reginald H. Jackson, Madison, will discuss "'Acute Surgical Abdomen,' Diagnosis and Treatment"; Dr. William F. Braasch, Rochester, Minn., "Calculi in the Urogenital Tract"; Dr. Arnold Schwyzer, St. Paul, "Principles of Surgery of the Gallbladder," and Dr. Clarendon J. Combs, Oshkosh, "Management of Common Fractures." The annual golf tournament will be Tuesday. The new rule is "plenty of prizes but only one to a person." The president's cup will be awarded for the low gross score and the secretary's cup for the low net score. These prizes are now held by Dr. Malcolm P. Andrews, Manitowoc, and Dr. Joseph H. Carroll, Milwaukee, respectively. A symposium on "Method of Examination in General Practice" will be held Friday morning, the speakers being Drs. Isaac A. Abt, professor of pediatrics, Northwestern University Medical School, Chicago; Ira R. Sisk, Madison; Lewis J. Pollock, professor of neurology, Northwestern University Medical School, Chicago, and Frederick J. Gaenslen, Milwaukee. Friday afternoon, Drs. George R. Minot and William P. Murphy, assistant professor of medicine and assistant in medicine, respectively, Harvard University Medical School, Boston, will speak on "Treatment of Pernicious Anemia." The first meeting of the house of delegates will be Tuesday. The biennial conference of state health officers will commemorate the fiftieth anniversary of the founding of the state board of health, as a result of legislation fostered by the Saulk County Medical Society and the state medical society. An unusual program of entertainment for the wives of visiting members has been arranged. The wives of members of the Eau Claire County Medical Society extend to them a special invitation to come.

GENERAL

Symposium on Organic Chemistry.—The second national symposium on organic chemistry will be held at Ohio State University, December 29-31. Suggestions for the program should be sent to the secretary of the division of organic chemistry of the American Chemical Society, Prof. Frank C. Whitmore, Northwestern University, Evanston, Ill.

Lepers Removed to Carville.—Twenty-seven lepers were taken to the National Leper Home at Carville, La., between July 1 and August 10, it was announced at the office of the U. S. Public Health Service, Washington, D. C. Ten were said to have been from the state of California. They were sent in a private car attended by a detail from the Marine Hospital at San Francisco.

Pan American Sanitary Conference.—The eighth Pan American Sanitary Conference will be held in Lima, Peru, October 12-20, under the auspices of the government of Peru, which has sent invitations to the countries of America to appoint delegates to the conference. Dr. Carlos Enrique Paz Soldán, professor of hygiene of the Medical Faculty of Lima, is the provisional president of the conference, and together with Dr. Sebastián Lorente, director of public health of Peru, and Dr. Baltasar Caravedo, chief of the hygiene and industrial welfare service, makes up the organizing committee. The provisional program includes the consideration of the modification of the Pan American Sanitary Code in several particulars, among which are that the interchange of information so far as it relates to copies of laws and regulations pertaining to health and sanitation be made obligatory, and that smallpox be added to the list of diseases named in article 29 of the Sanitary Code, the words "or other pestilential diseases in severe epidemic form" being omitted.

Postoffice Department Requests Help—Reward Offered.—The Postoffice Department, New York City, requests the cooperation of physicians in an effort to apprehend Frank Kiekart, who is wanted for the murder of a letter carrier at Elizabeth, N. J., October 14, 1926, and the theft of $151,700. A reward of not to exceed $2,000 will be paid for information leading to the arrest and conviction of Kiekart on this charge. He is supposed to be suffering from a fistula or other rectal condition which will necessitate frequent medical attention. The postoffice department has distributed Kiekart's picture to many physicians, as well as his description. He is about 43 years of age; 64¾ inches tall; weighs about 129 pounds; has light chestnut hair; is of German descent; is nontalkative, and frequents cheap hotels and saloons. Any physician who treats a man for rectal trouble who answers somewhat to this description is requested to communicate with the Postoffice Inspector in Charge, New York (telephone, Pennsylvania 7700), or the Postoffice Inspector in Charge, Philadelphia (telephone, Walnut 0420).

Meeting of Obstetricians, Gynecologists and Abdominal Surgeons.—The fortieth annual meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons will be at Asheville, N. C., September 15-17, under the presidency of Dr. John Osborn Polak, New York. The reception to guests and new fellows will be Thursday evening. The executive council will hold a meeting, Wednesday evening, and again, Thursday morning. A new feature of the program this year is a medical arts exhibit to which all are invited to bring valuable medical illustrations, or these may be sent to the secretary, who will arrange for their display. Illustrations of technic are not appropriate. The guests will be Dr. William P. Healy, New York City, whose subject is "Early Diagnosis of Cancer, Particularly from Gross Characteristics"; Dr. John Harvey Kellogg, Battle Creek, Mich., who will speak at the dinner; Dr. James R. Bloss, Huntington, W. Va., whose subject is "Practice of Ideal Obstetric Technic in the Home," and Halsey J. Bagg, New York City, "Experimental Studies on the Etiology of Mammary Carcinoma." The committee on maternal welfare will report, and papers will be read by members from various parts of the country, as well as a communication from Prof. Dimitri DeOtt, Leningrad, Russia. Visitors are welcome to the scientific meetings.

Academy of Ophthalmology and Oto-Laryngology Meeting in Detroit.—The thirty-second annual meeting of the American Academy of Ophthalmology and Oto-Laryngology will be at the Book Cadillac Hotel, Detroit, September 12-16, under the presidency of Dr. Ross H. Skillern, Philadelphia. The scientific program will comprise twenty-five papers, and sixty postgraduate conferences. The principal symposium will be on "Focal Infections" participated in by Drs. Russell

L. Haden, Kansas City; Edward C. Rosenow, Rochester, Minn.; Harry W. Lyman, St. Louis, and Earl Rice, Philadelphia. In addition, ten papers will be presented in each of the two sections, and guests and members are invited to participate in the discussions. The sixty conferences will each be limited to fifteen or twenty persons. They will be presented in private rooms, for which purpose twenty-five rooms on the seventh floor of the hotel have been reserved. The conferences will be held Wednesday, Thursday and Friday mornings, and most of them will be repeated two or three times. One dollar will be charged for each conference attended, and tickets may be secured from the registration desk in the hotel, September 12. A few of the subjects to be presented are: "Histopathology of the Commoner Diseases of Cornea with Demonstration of Actual Specimens with Euscope" by Dr. Walter E. Camp, Minneapolis; "Routine Vestibular Examinations: Indications for Examination and Technic" by Dr. Frank B. Kistner, Portland, Ore.; "Fracture of the Nose —Methods of Treatment and Time to Be Applied," with freehand illustrations, by Dr. Ferris Smith, Grand Rapids, Mich.; "The Constricted Nasal Passage: Anatomic Considerations, Pathology, Indications for Operation, and Types of Operation" by Dr. Thomas E. Carmody, Denver. The guest of honor will be Gen. Herbert S. Birkett, M.D., Montreal, Que. The usual golf tournament will be held Monday, and special dinners by alumni of postgraduate schools and societies, Thursday; bridge parties, receptions, dinners and boat rides have been arranged for the ladies. The examinations by the board for ophthalmology and otolaryngology will be Monday morning at 8 o'clock. The academy is interested in electing to membership qualified persons, and the executive secretary, Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, will furnish application blanks on request.

CANADA

Personal.—Dr. Wilfred T. Grenfell, for many years a medical missionary in Labrador and Newfoundland, was knighted, July 25, at the formal opening of a new hospital at St. Anthony, Newfoundland, made possible by the Grenfell Association. ——Dr. Frederick G. Banting, professor of medical research, University of Toronto Faculty of Medicine, has left Toronto for Sydney, Nova Scotia, according to *Science*, with the intention of accompanying the Canadian annual Arctic expedition to the polar regions.

Director of Hospital Services Appointed.—Dr. Edward Ryan, superintendent, Ontario Hospital, Kingston, has been appointed director of hospital services for the province of Ontario. This position was created in order to make possible careful supervision over the latest developments in the treatment of patients with mental disorders. Dr. Ryan will be responsible to the minister and deputy minister in the discharge of his duties, which will be confined solely to the advancement of the medical field in treating cases of mental illness.

Medical Society Elections.—At the annual meeting of the Canadian Medical Association in June, Dr. Frederick N. G. Starr, Toronto, was elected president; Dr. Stephen R. Jenkins, Charlottetown, P. E. I., president-elect; Dr. Alexander Primrose, Toronto, chairman of the council; Dr. Alfred T. Bazin, Montreal, honorary treasurer, and Dr. Thomas C. Routley, Toronto, general secretary. The next meeting of the association will be at Charlottetown, P. E. I.——The officers of the Ontario Medical Association elected at the recent annual meeting in Toronto were Dr. Weston Krupp, Woodstock, president; Drs. Ernest A. McQuade, Trenton, and Alfred J. Grant, London, vice presidents; Dr. George Stewart Cameron, Peterboro, honorary treasurer, and Dr. Thomas C. Routley, Toronto, secretary.——Dr. John T. Phair, Toronto, was reelected secretary of the Canadian Public Health Association at the annual meeting in June.

FOREIGN

Institute for Medical Research.—The German government institute for "natural therapy" at the University of Jena, research to be affiliated with the Kaiser Wilhelm Gesellschaft. L. Krehl is to be the director, but other scientists are to have independent departments. The Heidelberg Institute for Cancer Research and the Heidelberg Institute for Protein Research will be a part of the new institute.

Faculty Objects to Appropriation for "Natural Therapy."—The house of representatives of Thüringen has authorized a grant of 100,000 marks as first payment on the erection of an institute for "natural therapy" at the University of Jena. The medical faculty of the university has published a resolution condemning the laymen's idea underlying the grant, and pointing out that several important clinics at the university need funds.

Professor Kettle Appointed to Chair of Pathology.—Prof. E. H. Kettle has been appointed to the university chair of pathology, tenable at St. Bartholomew's Hospital Medical College, effective, October 1. Dr. Kettle has been professor of pathology and bacteriology at the Welsh National School of Medicine, Cardiff, since 1924. He was appointed assistant pathologist to St. Mary's Hospital in 1907; pathologist in 1920, and later director of the department of general and special pathology in the new Institute of Pathology and Medical Research. He is, the *Lancet* states, vice president of the pathologic section of the Royal Society of Medicine.

Deaths in Other Countries

Charles Creighton, author of "History of Epidemics in Great Britain," "Microscopic Researches on the Formative Properties of Glycogen," "Shakespeare's Story of His Life," and other books, July 18, aged 79.—— Prof. **R. Magnus,** pharmacologist, University of Utrecht, suddenly, at Pontresina, aged 51.

Government Services

Enlargement of Walter Reed Hospital

The contract has been awarded to the Fleisher Engineering Construction Company, Chicago, for the construction of the east and west wing additions to the main building of the Walter Reed General Hospital, Washington, D. C. The amount of the contract as awarded is $1,077,605. The buildings will be of fireproof construction, with limestone trim and slate roofs. The contractor has agreed to start work within ten days and to complete the buildings for occupancy in 200 calendar days thereafter. The present administration building has three stories and a basement, and a one story pavilion on the east and west sides. The new construction increases the height of these east and west pavilions to two stories, and adds a large U shaped wing to the east and west of the existing pavilions. The east wing addition will be four stories high and will accommodate approximately 188 patients in private rooms and small wards. The west wing, on account of the contour of the ground, will be three stories high with a basement, and will accommodate 194 patients in wards of varying size. With the new construction, the hospital will have a group of fireproof buildings that will make it possible to eliminate many of the temporary structures erected during the war and concentrate the activities of the hospital which are now scattered over a large area. This contract will not complete the program as provided for by Congress. Plans for the balance of the work are in the course of preparation. The Walter Reed Hospital is a part of the army medical center which includes the Army Medical School, the Army Dental School and the Army Veterinarian School. In connection with the hospital there is operated the army school of nursing, and facilities for training certain enlisted specialists. Ultimately, it is planned, the army medical museum and the army medical library will be located also on this site, which will make it one of the greatest professional centers.

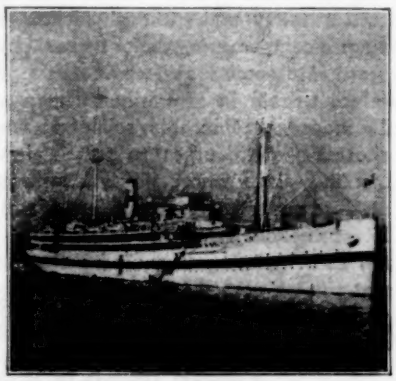
U. S. Public Health Service

Surg. Harry E. Trimble has been directed to assume charge of the marine hospital number 7, Detroit, on the departure of Surg. John S. Boggess, and Surg. Paul M. Stewart to assume charge of marine hospital number 70, New York, on the departure of Surg. William C. Billings; Assist. Surg. Albert S. Irving has been assigned to duty at marine hospital number 70, New York, and Assist. Surg. Albert E. Russell to Washington, D. C., in the office of industrial hygiene and sanitation; Acting Assist. Surg. Purl Reed has been directed to proceed from Council Bluffs, Iowa, to Pittsburgh for duty with the U. S. Bureau of Mines; Assist. Surg. Edward R. Pelikan has been relieved from duty at San Francisco and assigned to duty at Manila, P. I., effective, August 20; Assist. Surg. Fletcher C. Stewart will be relieved from duty at Angel Island, Calif., and assigned to duty at Hongkong, China; Assist. Surg. Charles B. Stacy has been relieved from duty at Little Rock, Ark., and assigned to duty at marine hospital number 13, Mobile, Ala.; Assist. Surg. Bennett A. Wight has been relieved from duty at Baltimore and assigned to marine hospital number 21, Stapleton, N. Y.

Asst. Surg. Franklin J. Halpin has been relieved from duty at Hongkong, China, and assigned to duty at Washington, D. C.; Prof. Carl Voegtlin was directed to proceed, August 10, from Washington to Woods Hole, Mass., and return in connection with field investigations relating to public health; Surg. Carl Michel has been relieved from duty at Seattle and assigned to duty at Little Rock, Ark., in connection with flood work.

The U. S. Navy's Hospital Ship

Perhaps many who attended the annual session of the American Medical Association in Washington, D. C., saw this great ship. It is the U. S. S. *Relief*, the only hospital ship in commission in the navy. The *Relief* is an oil burning ship of 9,800 tons, 484 feet long, with a complement of 324 enlisted men and twenty-nine officers, of whom nine are medical officers, two dental officers, three pharmacists and twelve members of the nursing corps. It has fourteen wards and rooms for nineteen officer patients; detachable berths, so that patients may be handled without removal from the berth; elevator service fore and aft, and specially designed apparatus for lifting patients aboard on stretchers. There are isolation wards for contagious diseases, an operating room, two decks high, with such accessories as an anesthetic room, sterilizing room, and dressing room. The electrocardiograph on board is said to be the only one afloat. The diet kitchen is fitted with electric ranges and food prepared there is routed to the wards by means of a portable cafeteria which insures its reaching the patient warm. The medical officers assigned to the *Relief* include specialists in various branches of medicine. The commanding officer, the executive officer, the engineer officer and several lieutenants assigned to the ship are officers of the line. The *Relief* was built at the Philadelphia navy yard and was commissioned in 1920. Its home yard is Mare Island, California.



Veterans' Bureau Personals

The July U. S. Veterans' Bureau *Medical Bulletin* notes the following changes in personnel: Dr. Edward L. Artman, Jr., transferred from West Haven, Conn., to Fort Snelling, Minn.; Dr. Lundy N. Barnard, appointed at Memphis, Tenn.; Dr. Elexious T. Bell, resigned at St. Paul; Dr. William A. Cashion, transferred from Tacoma, Wash., to Waukesha, Wis.; Dr. Wallace H. Cole, resigned at St. Paul; Dr. Joseph Epstein, appointed at the Bronx, N. Y.; Dr. Ord Everman, transferred from central office to Louisville, Ky., regional office; Dr. Frank A. Fearney, transferred from coordination group B, New York, to section A, central board of appeals, Boston; Dr. Frederic E. B. Foley, resigned at St. Paul; Dr. Ernest M. Hammes, resigned at St. Paul; Dr. Charles N. Hensel, resigned at St. Paul; Dr. Robert A. Keilty, appointed at Washington, D. C.; Dr. Henry J. Kellum, transferred from Palo Alto, Calif.; to North Little Rock, Ark.; Dr. Agha B. Musa, appointed at North Chicago, Ill.; Dr. Edward M. Parker, transferred to central office from control area A, Boston; Dr. Joseph L. Polizzotti, appointed at the Bronx, N. Y.; Dr. Gardner S. Reynolds, appointed at Minneapolis; Dr. Edward Schons, resigned at St. Paul; Dr. Frederick J. Smith, transferred from North Little Rock, Ark., to Palo Alto, Calif.; Dr. Walter S. Taylor, resigned at Tuskegee, Ala.; Dr. Charles J. Trail, reinstated at Palo Alto, Calif., and transferred to Seattle regional office; Dr. Thomas D. Tuttle, resigned at St. Paul; Dr. Allen H. Walker, transferred from Louisville, Ky., to Memphis, Tenn.; Dr. John M. Yarborough, resigned at New Orleans; Dr. Arthur W. K. Akerley, resigned at Helena, Mont.; Dr. Walter D. Berry, appointed at Seattle, and resigned; Dr. Edwin C. Chamberlin, resigned at New York; Dr. Leroy Jones, resigned at Walla Walla, Wash.; Dr. Gettis T. Sheffield, appointed at Jackson, Miss.; Dr. Frank R. Silver, resigned at New York, and Dr. Clark J. Stevens, resigned at Indianapolis.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 6, 1927.

Septic Pneumonia from Tooth Extraction

A widow claimed damages from a dentist, formerly house surgeon at the National Dental Hospital, and from the medical superintendent of the hospital for the loss of her daughter, whose death, she alleged, was due to the negligence in the extraction of a tooth. The daughter, aged 30, went to the hospital, May 22, 1925, to have three teeth extracted. During the operation, which was performed under nitrous oxide gas by a student, the crown of one molar was broken off and disappeared down her throat. When she recovered from the anesthetic she complained to her sister of difficulty in breathing, but she was allowed to go home and nothing was said to her about the missing piece of tooth, and arrangements were not made for further examination or treatment. Septic pneumonia followed, as the result of impaction of the piece of tooth in a bronchus, death occurring August 27. The plaintiff's lawyer submitted that had an operation been performed within a few days of the extraction the patient's life might have been saved. It was negligence, he argued, to allow a student to extract the tooth and not to tell the patient's friends what had happened. Mr. Justice McCardie, in his summing up, said that every one in the operating room knew that the tooth had gone down the patient's throat but when she left the hospital she had no idea of what had happened and nothing was said about it to her sister, who was with her. The jury must consider whether the defendants were guilty of negligence in not informing the patient or her friends what had taken place, and in not taking steps to ascertain where the broken piece of tooth was. The jury found that negligence had been proved against the dentist. It severely censured the general committee of the hospital, because if there had been a tighter hold on the management the case against the dentist would not have been so severe. The jury assessed the damages at $750.

The Ministry of Health

In the House of Commons, Mr. Neville Chamberlain, minister of health, said that this year there was an increase in the vote for his department of a little more than $5,525,000. Some $4,800,000 was accounted for by an increase in the number of houses on which subsidy was paid. He then described a number of important projects. Town planning seemed to be generally increasing. It saved unnecessary and wasteful expenditure in the future and at the same time preserved amenities and conveniences for the public. At present about 2,700,000 acres were covered by town planning and regional planning schemes. Local authorities were beginning to make much greater provision for playing fields.

IMPROVEMENT IN PUBLIC HEALTH

He was glad to be able to give a good report. Last year the general death rate was 11.6 per thousand, compared with an average of 12.2 per thousand in the five years preceding, and the infantile mortality rate, which had been 76 per thousand births in the preceding five years, had come down to 70. One could not say too much in praise of the great system of maternity and child welfare centers now spread throughout the country, on which an immense amount of devoted voluntary effort was being expended. To that he thought must be ascribed the continued improvement in the infantile mortality. In other respects the health of the nation continued to improve. There was a steady decline in the mortality due to tuberculosis, scarlet fever and typhoid. He was sorry to say that

the deaths from cancer continued to increase. The records of smallpox were becoming alarming. In 1922 there were in England and Wales 973 cases; in 1923, 2,500; in 1924, 3,800; in 1925, 5,300; in 1926, 10,100, and this year up to the end of May there were 8,700 cases. Fortunately, the type of smallpox at present was very mild; but there was always danger that there might be a recurrence of the virulent form. The extent of the disease was now assuming serious proportions, and even though mild in character it was inflicting an amount of pain, suffering and loss that was preventable and ought to be prevented. He had set up a committee to inquire into the question of vaccination. This country was playing in measures that were taken internationally for the prevention of disease and the improvement of health.

HEALTH COOPERATION THROUGH THE LEAGUE OF NATIONS

The League of Nations had a health committee on which this country had a representative. This committee was engaged on two pieces of work that were of direct interest to us as a country and to the British Empire. One of them was concerned with the establishment of an epidemic intelligence center at Singapore. The sanitary administration of the ports in the Far East was a particularly difficult problem because each one was surrounded by great areas in which the conditions were such that epidemic diseases were always present, and it was of the first importance to prevent the spread of such diseases as yellow fever, plague or smallpox by communicating information from one sanitary port officer to another. By the generosity of the Rockefeller trustees this epidemic intelligence center had been established at Singapore, and thanks to that and the introduction and development of wireless it was now possible to convey information with great rapidity and at an extremely low cost. The results were invaluable to British interests generally and to British shipping in particular. There was also the work which was being done by the Health Committee of the League of Nations in the investigation of the prevention of malaria. A great deal was already known about malaria, thanks largely to the researches of British investigators. Malaria could be stamped out in particular localities, as had been done in Panama, but these measures were very expensive. The league was attempting to discover some new methods of prevention which might be less intensive in their scope but which would be less expensive and could therefore be put into operation over larger areas.

There were two projects, both of first-rate importance, now proceeding in London. In 1920 a committee was set up and one of its recommendations was that there should be established in London a school of hygiene and tropical medicine. That school was now being built. The Rockefeller trustees had contributed $10,000,000 and the British government had become responsible for the maintenance of the school when completed. It was believed that this school would form a center to which could come those who were proposing to embark on a career as health officers or physicians in the tropics. They would be able to see there the tropical diseases which they would find when they got to their destinations and would be able to study those general principles of public health which governed all administration of the kind, whether in the tropics or in temperate climates.

A POSTGRADUATE MEDICAL SCHOOL

The other project was the establishment in London of a postgraduate medical school. A strong committee of physicians and surgeons had been set up to consider what was the best way of carrying the proposal into effect. The committee laid it down that it was not possible to combine in one school undergraduate and postgraduate teaching. Therefore the building of a new school or the adapting of some existing institution had to be considered. The committee decided against the building of a new school, because that meant the building of a hospital with 400 beds which would have involved not only a large capital expenditure but also an annual liability for maintenance. The committee therefore examined the various existing institutions and came to the conclusion that it could find what it wanted in the West London Hospital at Hammersmith. That hospital had a long experience in postgraduate teaching. It had a space into which it could extend, so that the necessary lecture rooms and laboratories and additional beds could be provided. The buildings were being examined by technical experts with a view to seeing them available for this purpose. If this scheme could be brought to a conclusion it would be a great thing for the medical services of this country and of the empire, and he almost said of the world. One of the difficulties today was that physicians who might have had a magnificent training before they entered into practice went down into some remote part of the country and found themselves unable in any way to keep abreast of modern work. He hoped that in this school it would be possible to give short review courses to panel physicians. It would be a meeting place where physicians would come from all parts of the empire to exchange ideas and experiences, to see the latest methods and what success had attended them. He was not contemplating that the scheme should be financed by the state, but a contribution might be given from the educational point of view, and that would bring the ministry of health into close contact with it.

Venereal Disease in British Colonies

The British Social Hygiene Council brought recommendations before a recent colonial office conference. To stamp out venereal disease it recommended that specially qualified physicians be placed in charge of antivenereal work with adequate facilities. In appointing medical officers in the future the colonial office should demand an efficient knowledge of the diagnosis and treatment of venereal diseases, and study leave should be given to enable medical officers to secure the necessary knowledge. Where the appointment of a specialist is impracticable for some small unit, a specialist might be appointed to hold postgraduate courses in a number of centers, who could devise and supervise special treatment of facilities in each center and act as adviser to the medical officers and promote a campaign for public enlightenment. In regard to education it was proposed that as emergency measures, pending the adequate training of teachers, arrangements should be made between the colonial office and groups of colonies for visits by a biologist and a psychologist to the different units and for scholarships to be offered to enable selected teachers to take a full year diploma course which, it is hoped, will shortly be available at the universities.

No Privilege of Secrecy for Records of Clinics for Treatment of Venereal Disease

Unlike some other countries, we have no privilege of secrecy in the law courts for information derived by physicians in the practice of their profession. In the government clinics for the treatment of venereal disease, the government has made special regulations of secrecy; but they have failed to afford protection in a recent case at the Birmingham assizes of a divorce petition. The point was raised as to whether a physician is bound to produce documents and give confidential information. Mr. Justice McCardie said that, while he fully appreciated the loyalty of the physicians to their profession and the protests they had rightly made to the court against being called on to give testimony, the order of the court was that, there being no privilege on their part to refuse information, they must give the testimony which it was in their power to offer to the court. Mr. B. T. Rose, a

physician, made a protest, but the lawyer who appeared for the petitioner contended that no distinction could be drawn between treatment at the clinic and the treatment of an ordinary patient. Certain protection and privilege appertained to lawyers, but none to physicians, in spite of special regulations governing the treatment of venereal diseases issued by the local government board to local authorities. The judge said that physicians normally were under the duty of keeping inviolate the secret knowledge that they might gain from treating their patients and, indeed, might become liable to an action for damages if, without lawful excuse, the duty of confidence was broken; but in a court of law a physician had no privilege similar to that held by a solicitor. A further point arose in the present case as to whether the physicians were in a specially privileged position owing to the fact that they were acting in a department under the control of the ministry of health. There was nothing in the regulations which saved a physician from the obligation of disclosing, if ordered to do so by the court, all the information he might have of the facts he had gained while acting under the regulations. The judge accordingly directed the physician to produce the information and he did so.

PARIS

(From Our Regular Correspondent)

July 27, 1927.

Small Epidemic of Mild Typhus

Dr. Olmer of Marseilles has informed the Académie de médecine of a recent epidemic of mild typhus in that city. It was characterized by slight but constant symptoms and by the absence of the Weill-Félix reaction. From the symptoms given, Netter recognized Brill's disease, which he described in New York in 1897 and observed in Paris in 1916 and 1917. Netter shares Brill's opinion that this disease is a typhus attenuated by time and by passage through a large number of carriers, but he believes that it would be a mistake to feel too secure in the opinion that this attenuation is final. In 1893, eighty years after the last epidemic of typhus in France, an epidemic, quickly brought under control, broke out in Paris. It appeared to have originated in small foci in certain small villages in Brittany, where the disease had persisted in a light form from the time of the former epidemic.

Radiotherapy of the Suprarenals in Hypertension

Before the Société médicale des hôpitaux de Paris, Laubry presented a patient who had frequent paroxysmal crises of arterial hypertension, which were accompanied by great pain and which none of the classic remedies had been able to relieve. Laubry, interpreting the symptoms as crises of hyperproduction of epinephrine, treated the patient with deep roentgenotherapy of the suprarenal glands. After fourteen irradiations, the crises, which, up to that time had occurred five or six times a day and were sometimes accompanied by hemorrhages into the retina, disappeared completely. As a measure of safety, another series of twenty-four irradiations was given at the end of six months. It is now a year since the patient had the last crisis; he is living a normal life. Sergent added that this method might be applicable to permanent arterial hypertension, such as is found in men between 40 and 50 years of age and in women at the beginning of the menopause. He has tried it in some cases and has obtained some encouraging results.

Congress of Legal Medicine

The twelfth French Congress of legal medicine met recently at Lyons. A report on pathologic thieving was presented by Raviart, Neyrac and Vulien. Kleptomania is not always imaginary. By a unanimous vote, the congress affirmed the necessity for installing in penitentiary establishments observation services permitting the individualization of the penalty, according to the Belgian system and in conformity with the new provisions of the Italian law. Naville and Morsier presented a report on electrocution accidents and Piédelièvre a report on the portals of entry of projectiles in the skin. During the congress there took place in the large amphitheater of the Department of Medicine the formal unveiling of the bust of Lacassagne, who was professor of legal medicine at Lyons.

Divorce for Insanity

The French law does not admit insanity or incurable disease as a cause for divorce. Nevertheless, the question has been brought up in a bill presented by Deputies Palmade and Hesse, and the Société médico-psychologique has discussed it. Eissen and Provent oppose it on the ground that divorce is a form of punishment. From the medical point of view, they believe that the number of cases would be small, if only those were included in which the diagnosis was infallible. Finally, it would place insurmountable difficulties in the way of the application of the law for the protection of the insane. Courbon cited the German law, which authorizes divorce in such cases, and which was applied in Alsace, where it was often of benefit to the patient and to the children of the marriage and regularized desperate social situations. The question of infallibility of the diagnosis is the same here as in any other matter of expert medicolegal opinion. Trenel agrees with this view and cites the example of numerous countries where this law has been adopted. There exist certain mental disturbances from which recovery never takes place and the subject of which is practically shut off from social life until his death, leaving the marital partner in an intolerable situation. Roubinowitch says that general paralysis, the result of syphilis contracted outside of marriage, might create rights on the ground of "grave offense" to the other marital partner. The majority of the members of the Société médico-psychologique appeared to be favorable to the proposed law.

The French Surgical Congress

The thirty-sixth Congress of the French Surgical Association will be held at Paris, October 3-8. It will meet in the large amphitheater of the Department of Medicine under the presidency of Bégouin of Bordeaux. The following questions will be discussed: 1. Drainage in abdominal surgery; speakers, Cadenat of Paris and Patel of Lyons. 2. Pericolitis and chronic epiploitis; speakers, Lardennois of Paris and Silhol of Marseilles. 3. Indications for and results of periarterial sympathectomy in surgery of the extremities; speakers, Leriche of Strasbourg, and Robineau of Paris.

The Interstate Postgraduate Assembly in Paris

A group of 150 physicians belonging to the Interstate Postgraduate Assembly of North America have just arrived in Paris by way of Belgium. They were received by the most eminent persons in the medical world of Paris, who arranged for them to visit the principal scientific centers and hospitals of the capital. A reception was held at the Elysée by the president of the republic, who accepted an honorary diploma of membership.

Fifth Congress of French-Speaking Gynecologists and Obstetricians

The fifth Congress of French-Speaking Gynecologists and Obstetricians will be held at Lyons, September 29-October 1, under the chairmanship of Professor Villard. The topics on the program are: (1) the diagnosis and surgical treatment of sterility of uterine and tubal origin, by Chatillon of Geneva and Douay of Paris; (2) indications for the interruption of pregnancy, by Brouha of Liége and Bue of Lille,

and (3) the separation of mother and new-born and the means of preventing it, by Rheuter of Lyons. Only the members of French-speaking gynecologic and obstetric societies may participate in the congress.

Deaths

Dr. Mery, one of the most distinguished French pediatricians, has died. He published the first treatise on school hygiene in France. For a long time he was medical head of the Hôpital des Enfants-malades and was a member of the Académie de médecine.

BERLIN

(From Our Regular Correspondent)

July 26, 1927.

Women in Industry and Suicide

Suicide is more frequent in men than in women. Before the war, for every 100 male there were 34.2 female suicides; in 1920, 53.9; in 1924, 37.3. The percentage of women has fallen again in the last few years in Hamburg. The number of female suicides recently has risen and that of male suicides has fallen. Writing in the *Deutsche medizinische Wochenschrift*, Professor Hanauer comes to the conclusion that the participation of women in industry favors suicide. Since the winning of "woman's rights," woman "is thus paying a high price for her equality." This is particularly evident in Russia. Before the war the proportion of male to female suicides was 4:1. After the war, when women were granted equality in social life, the percentage of female suicides was doubled or trebled. This generally observed relation contradicts the suicide statistics of India, where the female surpass the male suicides in number. But here there exist peculiar conditions, arising from the low position of women and also from religious views. In India the woman feels herself to be the personal property of her husband, whom she must follow in death, or her position is so desperate that she not infrequently puts an end to her life. In attempts at suicide, women figure comparatively more frequently than men. In England, in the years between 1893 and 1907, for every 100 attempted suicides by men there were seventy by women, whereas there were only thirty completed suicides by women to 100 by men. Men, it appears, are more likely to succeed in suicide, whereas women more often resort to means that afford a possibility of rescue. Firearms, the rope and the knife are not so often used by them; instead, they choose water and poison, in which there is a greater possibility of rescue. In woman, pretended attempts at suicide are more frequent than in man, or the purpose to kill herself is not so strong but that she hopes still to be saved. Among the causes of suicide, mental disease is more common in women than in men.

Eightieth Birthday of Professor Martin

Prof. August Martin, formerly professor of gynecology in Greifswald, now retired, celebrated his eightieth birthday, July 14. He is the son of Eduard Martin, formerly director of the Berlin university women's clinic. In 1907 Martin was obliged to give up his post in Greifswald on account of increasing deafness and he returned to Berlin.

Study Tour of American Physicians in Germany

One hundred and fifty American physicians on a study tour through Europe have been spending the last few weeks in various German university cities.

Death of Professor Cassel

Professor Cassel, the pediatrician, died, July 15, at the age of 68. At the request of the municipal authorities of Berlin, he examined the feebleminded schoolchildren in one of the districts of the city and in 1909 published an important treatise on the results. In 1890 he founded his own policlinic for children's diseases. He played, furthermore, a prominent part in official life. He died of diabetes.

Prof. Paula Hertwig

After many years' activity as privatdozentin for zoology at the institute for investigations in heredity in Berlin-Dahlem, the daughter of the former professor of biology, Oskar Hertwig, has now been given a professorship without a chair. Her investigations were directed particularly to the development of triton and fish embryos under the influence of radium irradiation.

Professor Sauerbruch Called to Berlin

After tedious negotiations, Professor Sauerbruch has decided to leave Munich for Berlin, where he will take over the direction of the surgical clinic of the Charité as successor to Professor Hildebrand, who is retiring. A condition of his acceptance of the call was the assurance on the part of the ministry of education that he should take over Professor Bier's clinic on the latter's expected retirement two years from now, and that a new building should be constructed for this clinic.

ITALY

(From Our Regular Correspondent)

June 15, 1927.

Interchange of University Professors

According to a recent decree of the minister of public instruction, regular professors of the royal universities and institutions of higher learning may be placed at the disposal of the foreign minister for purposes of instruction, or other duties of a scientific nature, at foreign universities, while retaining the character of professors in active service, as regards effects both on their career and on their emoluments. The supplying of instructors in place of the professors on leave of absence will be at the expense of the central government. Likewise, the minister of public instruction, in agreement with corresponding officials in foreign countries, may authorize professors of foreign higher institutions of learning to impart instruction, temporarily, at Italian universities.

Hospitalization of the Mentally Ill

As a result of the statements made before the Sindacato Medico, a resolution was passed calling attention to the causes that tend to increase the number of crimes, suicide included, committed by the mentally ill, namely: the complicated procedure necessary for the detention of the patient in the psychopathic hospital; the uncertainty and delays in issuing certificates; the diffidence of the public toward psychiatric hospitals, together with the opposition that develops in the family of the patient. In order to remedy these factors, the Sindacato Medico suggested that the procedure instituted to bring about the detention of the patient be speeded up without neglecting precautions, and that the provincial administration furnish assistance in psychopathic cases.

Aid for Illegitimate Children

In the Gazzetta Ufficiale a decree has been published pertaining to the care of abandoned illegitimate children. This service will take the form of grants to mothers who raise their own children, the care of children in homes, and the placement of children in private homes. The following will be entitled to aid: abandoned children, children of unknown parents, children born out of wedlock, those reported as children of unknown parents, and children whose mothers are known but who are not in a position to provide for them. The management of these services will be entrusted to a physician who has specialized in child welfare work. Insti-

tutions that admit illegitimate children must endeavor to ascertain the maternity of the child, and must seek to induce the mother to recognize the child, and, if possible, to nurse it.

The Death of Professor Barbacci

Prof. Ottone Barbacci, the occupant of the chair of pathologic anatomy at the University of Siena, has died from an attack of angina pectoris. Born at Rosignano Marittimo, Oct. 26, 1860, Barbacci was graduated in 1882 at the University of Pisa. In 1894, he was given a chair in pathologic anatomy at the University of Siena, which position he held up to his death. In addition to numerous works on various subjects in pathologic anatomy, his work "I tumori" (tumors) is well known.

Physicians Aboard Ships

At a session of the chamber of deputies a resolution was presented to the effect that the chamber take action to improve the conditions of service of ship surgeons and make them equal at least to the conditions under which the head machinists serve.

Regulations Pertaining to Abortion

Proposed laws pertaining to public health contain provisions authorizing careful inquiry into cases of therapeutic abortion, in order to prevent abuses. In accordance with this law, midwives must consult a physician whenever they discover any irregularity during the course of pregnancy, and physicians, in turn, will be required to report all abortions to the province physician. The opening of homes or boarding houses for pregnant women must be authorized, in each instance, by the prefect of the province. The manufacture and the sale of articles used in the induction of abortion will be subject to special supervision.

BUDAPEST

(From Our Regular Correspondent)

July 19, 1927.

The Deafness, Last Illness and Death of Beethoven

Prof. János Bókay, director of the Pediatric Clinic of Budapest University, an ardent musician, and president of the Medical Philharmonic Club, commemorated the centenary of Beethoven's death by reading to the medical society a paper entitled "The Deafness, Last Illness and Death of Beethoven." Beethoven died March 28, 1827. About 30,000 persons followed his coffin when his body was taken to the famous church in the Alservorstadt. It looked as if a crowned head were being buried, although only an uncrowned prince of music was being escorted on his last road. The route on both sides was lined with the most prominent musicians then living. A band consisting of the most celebrated musicians of Vienna played Beethoven's "Marcia Funebre," and before the church in Alser street a sextet sang "Libera Me." In the entrance hall of the cemetery in Währing-Anschütz, an actor recited Grillparzer's touching funeral oration.

Beethoven's hearing became impaired in his twenty-third year. In 1801 he wrote to his friend Dr. Wegener that his hearing power had become worse and worse during three years, and in his will written in Heiligenstadt in 1802 he mentioned how difficult it was for him to conceal his impaired hearing, the weakness of a sense which, he said, he once possessed in the greatest perfection, to a degree, indeed, which certainly very few in his field possess or ever did possess. In 1815 Beethoven lost his hearing entirely. The great number of his works following after the hundredth opus, among others the seventh and eighth symphonies, the song folio "To the Distant Sweetheart," the quartettes, a considerable number of the piano sonatas and the Missa Solemnis and the ninth symphony, were all the products of this sad period. From 1818 on, Beethoven failed to hear even the sound of a trumpet, and he negotiated with Mälzel, the inventor of the metronome, concerning the construction of a similar instrument that would make it possible for him to conduct an orchestra. Mälzel did make different ear trumpets, which, however, were of little avail to him. All these instruments are exhibited in the Beethoven Museum in Bonn, Germany. On May 7, 1824, in the Vienna Musical Academy, when the Kyrie, Credo, Agnus Dei and Dona—all from the Missa Solemnis—were played before a huge and distinguished audience, Beethoven stood on the right of Umlauf, the conductor, paying attention to the beat. He did not hear anything of the performance, and he noticed the frantic applause of the huge audience only when Caroline Unger, one of the soloists, turned him round.

It was in 1814, on the occasion of playing the piano trio in B major, opus 97, that Beethoven the pianist bade farewell to the Viennese. At that time his hearing was already badly impaired. It is recorded that while composing he sat before the piano, using a slender, flat stick, one end of which he placed on the piano, and the other end between his teeth in order to employ bone conduction of the sounds elicited.

Apart from his frequent indigestion, Beethoven was not seriously ill up to 1824, although in 1802 his physician, Dr. Schmidt, sent him to Heiligenstadt, a health resort. He was then 32 and greatly concerned because of his failing hearing. Consequently he lost his self-confidence and made his will, from which one gets the impression that he entertained thoughts of suicide. An additional cause for depression was that the beautiful Countess Julia Guiccardi, with whom he was in love and to whom he dedicated the Moonlight sonata, had become betrothed to Count Gallenberg. Fortunately Beethoven soon afterward became fascinated with the charming and witty Bettina Brentano, later with the poetic Countess Therese Brunswick, and last but not least with Amalia Sebald. Which of the three was the "immortal sweetheart" remains a secret, because the famous three-part love letter, which was dated July 6 and 12, 1812, was found unaddressed in a secret drawer of Beethoven's writing desk.

In 1824 Beethoven's health began to fail and he was beset by the fear of dying of apoplexy. Aug. 1, 1824, he wrote to Dr. Bach: "I believe that sooner or later I cannot escape an apoplectic fit, such as my upright grandfather had and to whom I bear a likeness." In the winter of 1824-1825, he had hemoptysis and several times epistaxis. In 1825 he wrote to his nephew, "Death won't allow me a very long respite."

His death was caused by interstitial hepatitis, which surely had started long before but became known to his physicians only in the last stage of his life. In the fall of 1826 Beethoven spent some time in Gneissendorf, a climatic health resort, whence he traveled to Vienna, December 1, in frosty, tempestuous weather. He made the fairly long trip clad lightly and sitting on an ordinary milk cart. Later he described the cart to Dr. Wawruch as "the most miserable vehicle of the devil." He was forced by the inclement weather to spend the night in a village inn. Here he had an unheated room, and after midnight he began to shiver and had sharp pains in his chest. He arrived in Vienna, December 2, seriously ill, and Dr. Wawruch established the diagnosis of pneumonia, December 5. The fever subsided by crisis on the seventh day, and he felt much relieved, but Wawruch soon noticed, with dismay, the occurrence of ascites, the consequence of the interstitial hepatitis. December 20, paracentesis was necessary and a great quantity of water was discharged from the abdominal cavity. The operation had to be repeated, January 8, February 2 and February 27. Subsequent to paracentesis, Beethoven felt great relief. After the second puncture, when Professor Siebert drained off 27 pints of fluid, he thanked the professor: "You seem to me as if you were Moses, who hits the rock with his stick." That Beethoven's

condition became constantly worse is proved by his letter dated March 14 and addressed to his friend Moscheles. At this time the necessity for the fifth paracentesis arose and the master, who at that time had financial troubles, sorrowfully wrote to his friend: "I have to fight with a hard lot; nevertheless I subject myself to the dispositions of Fate, and I pray God He may direct my fate so that ere my death ensues I shall not suffer from want." It was Moscheles who intervened with the London Philharmonic Society to send £100 to Beethoven. And then, once more the wish to create flamed up in Beethoven, as shown by his letter of thanks written to the London Philharmonic Society, which he dictated eight days previous to his death: "I pledge myself to the society, as a token of my warmest gratitude, either to compose a new symphony, the scheme of which already lies on my writing desk, or a new overture, or something else, as desired by the society, if the Almighty will soon give me health."

March 23, his physicians, Malfatti and Wawruch, lost all hope, and on the twenty-fifth, agony began and lasted a whole day. On the twenty-sixth, at 6 p. m., he died.

His body was dissected, March 27. In the necropsy record, J. Wagner writes that the liver was shrunken to half its ordinary size, was as solid as tanned leather and was greenish blue. Its surface was covered with many irregularities, and it contained numerous hard nodules the size of a bean. All blood vessels in these nodules were constricted and thickened. The cartilage of the auricle was large and of regular form; the scaphoid depression, and particularly its crevice, were abnormally wide and one and a half times as deep as is usual. The eminences and depressions protruded greatly. The eustachian tube was very wide, its mucous membrane swollen, and toward the bony parts, a little constricted. The rather large cells of the mastoid process were lined with mucous membrane presenting vascular turgescence. The petrous bone likewise was pervaded by fairly large vessels. The membranous spiral lamina of the cochlea seemed a little injected. The cause of deafness, according to our present conception, was some disease of the labyrinth, and, in view of the constricted tube, there is justification in concluding that in the tympanic cavity serious anatomic changes must have been present.

June 26, 1888, Beethoven's remains were conveyed from the cemetery in Währing to the central cemetery of Vienna. After the body was exhumed, a committee, consisting of Weisbach, Toldt, the anatomist, and Meinert, examined the skeleton but, unfortunately, were permitted only twenty minutes.

Previously, an exhumation had taken place in 1863, thirty-six years after his death. Then, a successful plaster-cast was made from the skull by an assistant of the anatomic institute, Dr. Wittmann. The examination yielded the following cephalic measurements: smallest forehead width, 107 mm.; width of the opening of the right orbital cavity, 43 mm.; of the left, 41 mm.; height of the cavity on both sides, 36 mm.; height of the nose, 49.2 mm.; greatest width of the nostrils, 26.5 mm.; width of the upper external angle of the jaw, 58 mm., and width of the lower jaw at the angles, 99 mm. From an anatomic point of view, Beethoven's skull was not regular; particularly noticeable were the strongly developed eyebrows, the flattened squamous part of the frontal bone, without marked frontal eminences, and the strinkingly large and asymmetrical openings of the orbital cavities. The part of the upper jaw located between the incisive fossae was very short and bent strongly forward. The alveolar eminences were prominent, although this was not at all striking while Beethoven was alive. Despite the well developed anterior nasal spine, the lower part of the external nose seemed particularly flat on the death mask. There were unmistakable signs of senile ossification (synostosis) of the cephalic sutures. The inner surfaces of the still existing pieces of bone from the dome of the skull showed less development of the cerebral depressions, a fact which was known already from the Seligmann plaster cast. It is not at all improbable, therefore, that the statements of Johann Wagner, though uncertain and less scientific, are borne out by facts. He stated, on the ground of necropsy observations made in 1827, that "the cerebral gyri were found to be twice the normal depth and were much greater in number than normal."

The present grave of Beethoven, in the central cemetery in Vienna, is decorated by a highly artistic marble obelisk. In its immediate neighborhood is the grave of Schubert. In its close vicinity also projects the so-called Mozart stone, in memory of Mozart, who was buried in an unmarked grave and whose body has never been found.

GENEVA

(From Our Regular Correspondent)

July 30, 1927.

Fats in Diet of the Tuberculous

At the recent meeting of the National Antituberculosis Congress, Dr. Jaquerod of Leysin presented a paper on "The Importance of Fats in the Feeding of Tuberculosis Patients." A tuberculous subject fed essentially on farinaceous and carbohydrate foods may fatten, without offering any resistance to tuberculosis, while a patient who absorbs and well supports a diet rich in albumin—especially a meat diet—although he does not fatten much, will develop greater resistance and recover more easily. Resistance to tuberculosis, conferred by alimentation, is consequently not a function of obesity. Yet the intake of fat is of the highest importance in the treatment of pulmonary tuberculosis. The absorption of fatty bodies allows the latter to arrive directly in contact with the pulmonary tissues before any assimilation or utilization by the rest of the organism has taken place. Peptone and the carbohydrates are absorbed by the veins and modified by their passage through the liver before entering the general circulation. Fats, on the contrary, are absorbed by the lymphatics in the form of a milky emulsion, which, by the intermediary of the thoracic duct, is thrown into the right heart and from here directly into the lungs. Hence the aim of treatment should be to cause the circulating fat to pass into the lungs as abundantly as possible.

In this respect the oils and, above all, cod liver oil, being the most fusible and more easily emulsified, should be given preference to other fatty bodies more easily digested. Every tuberculous patient should be given a dessertspoonful of cod liver oil before each meal for a long period. The well known excellent therapeutic action in tuberculosis of cod liver oil is attributable to the fats contained in it. The happy therapeutic effect of cod liver oil has also been explained by the action of lypolytic ferments which are produced at the time of the digestion of fats and which favor the destruction of the bacillus. This factor may also play a part.

Chair of Missionary Medicine

Following the example of the Universities of Würzburg, Louvaine and Lille, the University of Fribourg, Switzerland, has founded a chair of medicine for missionaries. Dr. Machon of Lausanne, whose competence in the matter is without question, has been called to fill this professorship.

Congress of the History of Medicine

The Sixth International Congress of the History of Medicine, which opened on the afternoon of July 18 in the large lecture hall of the old University of Leyden, was well attended. The members of the congress were notified by the president, Dr. J. G. deLint, that the royal consort would attend the opening exercises. Promptly at 3:30 the prince

and his escort appeared, in open-work suits of armor, while the municipal fathers wore morning coats dating from the renaissance, and top hats out of which one expected to see emerge at any moment a rabbit, a crate of eggs and a national flag done in near silk. There was a reverent hush. The delegates from the various democracies bowed to the ground. The prince and his escort backed into a nook behind the professorial lectern, seated themselves, and were addressed by the president of the congress. The prince then commanded the séance to begin. This he did by reading a portion of a speech in French. In spite of the fact that some of the speech never left the princely vocal cords, the effort aroused enormous enthusiasm. The delegates of the democracies again bowed to the ground, this time performing the motion backward.

It was then announced that eighteen countries were represented at the congress, and the delegates from them were called on in turn to address the royal consort, who quietly dozed while the Italian delegate was at great pains, in his address, to have him know that Holland was indebted to Padua, but that Padua generously overlooked the debt. The Spanish delegate broke the record by delivering the longest and most unintelligible of all the addresses, which represented a memorable endurance contest. The prince then awakened and was excused for the day.

One was satiated with papers on Boerhaave who, as all historians of medicine know, was an excellent clinician and teacher but nothing more. Sydenham, Cullen, Rush and others of the epoch were quite his equal. Without giving the titles of the abundant crop of contributions relating to the eminent Dutchman, the principal facts established may be thus summarized: 1. Boerhaave was not Dutch but Prussian. 2. He owed everything he knew about medicine to German professors. 3. His sole idea in teaching was to exalt the supremacy of German Wissenschaft. 4. Deutschland is the only country that produces medical historians.

International Association of Physicians

The Deutsche Aerztevereinsbund has just become affiliated with the International Professional Association of Physicians, which already includes professional groups representing twenty-three countries.

International Conference on Goiter

In 1923, Professors Hotz and de Quervain, respectively directors of the surgical clinics of the Universities of Bâle and Berne, proposed to the Swiss Commission on Goiter that an international meeting be held for the study of this disorder. This was favorably viewed by the profession of the United States, France and Germany. Therefore, the International Conference on Goiter is to take place at Berne, August 24-26. This is not to be a general congress on goiter but merely a meeting of physicians who have been occupied with research work on this process. Representatives from Vienna, Italy, the United States, India, France and Switzerland will be present.

Marriages

HAROLD SCOINS, Omaha, to Miss Anna J. S. Donelan of Glenwood, Iowa, at Grand Island, Neb., August 15.

JOHN CALVIN ALLEN, Hallsville, Texas, to Miss Elizabeth Rayford of Henderson, recently.

MILLARD HOMER FOSTER to Miss Grethel A. Lutz, both of Zionsville, Ind., August 15.

CLARENCE JACOBSON, Kimball, Minn., to Miss J. Edna Johnson of Mankato, June 14.

SAUL W. CHESTER to Miss Ruth A. Greuker, both of Paterson, N. J., June 26.

Deaths

Thomas William Salmon ✠ New York; Albany Medical College, Albany, N. Y., 1899; on the staff of the Willard State Hospital, 1899-1903; U. S. Public Health Service, 1903-1915; medical director of National Committee for Mental Hygiene and on the staff of the Rockefeller Foundation, 1915-1921; since 1921 professor of psychiatry at Columbia University College of Physicians and Surgeons; senior consultant in neuropsychiatry in the American Expeditionary Forces during the World War; was awarded the Distinguished Service Medal; Brigadier General, Medical Officers Reserve Corps; member of the medical council of the U. S. Veterans' Bureau and of the Permanent Interallied Committee on the After-Care of Disabled Soldiers; president of the New York Psychiatric Society and the American Psychiatric Association; member of the American Neurological Association, of the Association for Research in Nervous and Mental Disease, and of various committees and commissions; consulting psychiatrist to the Presbyterian Hospital; one of the editors of the Medical History of the World War; author of chapters on nervous and mental diseases in several textbooks, and a frequent contributor to medical journals; aged 51; was drowned in Long Island Sound while yachting, August 13. A necropsy disclosed that Dr. Salmon had a brain tumor and that there had been a cerebral hemorrhage.

Frank Edwin Coulter ✠ Los Angeles; Rush Medical College, Chicago, 1882; member of the American College of Physicians; formerly professor of diseases of the nervous system, Creighton University School of Medicine, Omaha; at one time on the staffs of the Douglas County, St. Joseph, St. Catherine's and the Lord Lister hospitals, Omaha, and the St. Bernard's and Mercy hospitals, Council Bluffs, Iowa; delegate to the International Congress of Psychiatry and Neurology and Physiology, at Amsterdam, Holland, in 1907; aged 66; died, July 17, of coronary sclerosis.

John Rochester Booth, Rochester, N. Y.; Johns Hopkins University School of Medicine, Baltimore, 1911; member of the Medical Society of the State of New York; associate instructor of medicine, University of Rochester School of Medicine and Dentistry; on the staffs of the Rochester General, and the Strong Memorial hospitals; served in France during the World War; aged 42; died, June 4, of chronic obliterating cholangeitis.

Bird McPherson Linnell ✠ Chicago; Rush Medical College, Chicago, 1893; associate clinical professor of medicine at his alma mater; served in the army, during the World War; for many years an officer of the Illinois National Guard; formerly on the staffs of the Evangelical Deaconess, Cook County, Chicago General and the Presbyterian hospitals, where he died, August 18, of arthritis and heart disease, aged 61.

Edward William Fiegenbaum ✠ Edwardsville, Ill.; Bellevue Hospital Medical College, New York, 1876; member of the House of Delegates of the American Medical Association, 1913, 1926 and 1927; past president of the Illinois State Medical Society; secretary and past president of the Madison County Medical Society; for many years member of the school board; aged 73; died, July 28, of heart disease.

Francis Moore Perkins, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1876; member of the Medical Society of the State of Pennsylvania; past president of the Philadelphia County Medical Society; formerly on the staffs of the Philadelphia General, St. Mary's, St. Agnes' and the Wills Eye hospitals; aged 76; died, August 6, following a long illness.

William Henry Foreman ✠ Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1902; associate professor of medicine, Indiana University School of Medicine; formerly member of the city board of health; on the staffs of the Methodist Episcopal, City and St. Vincent's hospitals and the Indiana Christian Hospital, where he died, July 22, of heart disease, aged 59.

Joseph Wright Leist ✠ Columbus, Ohio; University and Bellevue Hospital Medical College, New York, 1913; assistant professor of medicine, Ohio State University College of Medicine, Columbus; on the staffs of the Grant, St. Francis and University hospitals; aged 41; was drowned in the Sciota River, July 24, while attempting to rescue his son.

Walter Harrison True, Laconia, N. H.; Eclectic Medical Institute, Cincinnati, 1891; member of the New Hampshire Medical Society; for many years member of the state board of medical examiners and secretary of the board of health of Laconia; on the staff of the Laconia Hospital; aged 60; died, July 21, of angina pectoris.

Allen Benton Thrasher ✠ Cincinnati; Medical College of Ohio, Cincinnati, 1881; member of the American Laryngological Association; past president of the Cincinnati Academy of Medicine; laryngologist to the Christ Hospital and the Good Samaritan Hospital, where he died, July 31, of heart disease, aged 75.

David William Hasson, Buena Park, Calif.; State University of Iowa College of Medicine, Iowa City, 1877; member of the California Medical Association; Civil War veteran; formerly on the staff of the Norfolk (Neb.) State Hospital; aged 80; died, March 31, of myocarditis.

Arthur Hale McAnulty, Nanty Glo, Pa.; University of Pittsburgh School of Medicine, 1914; member of the Medical Society of the State of Pennsylvania; served during the World War; aged 42; died, July 19, at the Good Samaritan Hospital, Kearney, of angina pectoris.

Scott W. Skinner, Le Roy, N. Y.; Hahnemann Medical College of Philadelphia, 1868; Civil War veteran; for many years president of the board of education; health officer of Le Roy; formerly coroner of Genesee County; aged 83; died, July 22, of heart disease.

George Chesley McClean, Springfield, Mass.; Harvard University Medical School, Boston, 1875; member of the Massachusetts Medical Society; on the staffs of the Springfield Hospital and the Wesson Maternity Hospital; aged 76; died, June 29, of heart disease.

Arthur Wellington Clark, Lawrence, Kan.; Harvard University Medical School, Boston, 1884; member of the Kansas Medical Society; formerly health officer of Lawrence; aged 67; died, July 21, at the Lawrence Memorial Hospital, of cerebral hemorrhage.

Oliver Edwin Hampton, Lake City, Fla.; Emory University School of Medicine, Atlanta, Ga., 1921; member of the Medical Association of Georgia; on the staff of the U. S. Veterans' Hospital number 63; aged 31; died, July 20, of a bullet wound.

Blumes J. Lemoine, Cottonport, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1895; member of the Louisiana State Medical Society; aged 56; died suddenly, July 26, at Baton Rouge, of angina pectoris.

William Hilary Corrigan, Wilkes-Barre, Pa.; Jefferson Medical College of Philadelphia, 1893; member of the Medical Society of the State of Pennsylvania; aged 63; died, July 26, at the home of his brother in Hazleton, of pneumonia.

Vincent Giliberti ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1913; aged 37; died, August 6, at the New York Post-Graduate Medical School and Hospital, of uremia and secondary anemia.

Daniel Bacharach, Owego, N. Y.; University of Pennsylvania School of Medicine, Philadelphia, 1913; member of the Medical Society of the State of New York; aged 37; died, June 26, of meningitis following a mastoid operation.

James Carlisle Walton, Indianapolis; Starling Medical College, Columbus, Ohio, 1891; member of the Illinois State Medical Society; aged 57; died, July 29, of lobar pneumonia, following injuries inflicted by persons unknown.

John Milton Denison, Akron, Ohio; Starling Medical College, Columbus, 1893; member of the Ohio State Medical Association; past president of the Summit County Medical Society; aged 68; died, July 21, of heart disease.

George Whitefield Johnson, Savanna, Ill.; University of Michigan Medical School, Ann Arbor, 1863; Harvard University Medical School, Boston, 1865; Civil War veteran; aged 83; died, July 25, of cerebral hemorrhage.

Walter Benjamin Wallace, Coalgate, Okla.; College of Physicians and Surgeons, Baltimore, 1891; member of the Oklahoma State Medical Association; aged 65; died, July 3, of chronic myocarditis and nephritis.

R. H. Chittenden, Long Beach, Calif.; Long Island College Hospital, Brooklyn, 1866; College of Physicians and Surgeons, Chicago, 1884; Civil War veteran; aged 94; died, May 20, at the Seaside Hospital, of senility.

Chauncey Sherwood Carey, Elmira, N. Y.; United States Medical College, New York, 1880; member of the Medical Society of the State of New York; aged 68; died, June 28, of carcinoma of the larynx.

William Wickham ✠ Toledo, Ohio; Cincinnati College of Medicine and Surgery, 1883; served during the World War; aged 79; died, August 8, at the Flower Hospital, of carcinoma of the stomach and liver.

Frank C. Mehler ✠ New London, Iowa; Rush Medical College, Chicago, 1863; Civil War veteran; past president of the Henry County Medical Society; aged 82; died, July 21, of myocarditis.

Jason Morse, Glendale, Calif.; Detroit Medical College, 1885; for thirty years assistant medical superintendent of the State Hospital, Pontiac, Mich.; aged 70; died, July 22, of heart disease.

Rufus Pledger Sullivan, Cleveland, Tenn.; Chattanooga Medical College, 1897; member of the Tennessee State Medical Association; aged 60; died, August 1, of cerebral hemorrhage.

Austin Millard Grove ✠ York, Pa.; Jefferson Medical College of Philadelphia, 1902; city councilman; formerly on the staff of the York Hospital; aged 46; died, July 30, of chronic nephritis.

George Young Boal, Freedom, Pa.; Cincinnati College of Medicine and Surgery, 1870; aged 87; died, July 22, at the home of his son in Cooperstown, of arteriosclerosis and nephritis.

William Virgil Ford, Kansas City, Mo.; University of Kansas School of Medicine, Kansas City, 1925; aged 33; died, July 6, of agranulocytic angina with terminal pneumonia.

James E. King ✠ Richmond, Ind.; Medical College of Ohio, Cincinnati, 1884; formerly county physician and county health commissioner; aged 70; died, July 28, of diabetes mellitus.

Martha M. Dunn Corey, San Diego, Calif.; Woman's Medical College of Pennsylvania, Philadelphia, 1879; aged 73; died, recently, at Pacific Beach, of carcinoma of the breast.

Daniel Ryan Sartor, Alto, La.; Medical Department University of Louisiana, New Orleans, 1872; aged 79; died, July 6, as the result of hypertrophy of the prostate.

James Buchanan Lewis ✠ South St. Paul, Minn.; University of Pennsylvania School of Medicine, Philadelphia, 1878; aged 72; died, July 24, of cerebral hemorrhage.

Isabel Caldwell Boerke, San Francisco; Cornell University Medical College, New York, 1906; aged 45; died, July 26, at the Children's Hospital, of bronchopneumonia.

Micaiah R. Evans, Huntingdon, Pa.; Jefferson Medical College of Philadelphia, 1878; Civil War veteran; aged 84; died, July 24, of chronic nephritis and uremia.

James Henry Blair, Lombard, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1897; aged 56; died, July 16, of cirrhosis of the liver.

George Aaron Denman, Toledo, Ohio; Hahnemann Medical College and Hospital, Chicago, 1903; aged 50; died, August 9, of chronic parenchymatous nephritis.

James Duke Lyness ✠ Savanna, Ill.; Trinity Medical College, Toronto, Ont., Canada, 1901; aged 58; was found dead in bed, August 4, of heart disease.

Jose Ramon Avellanal, Tampa, Fla.; University of Havana, Cuba, 1897; aged 57; died, July 25, at a local hospital, of uremia and typhus fever.

John Stuart, Monon, Ind.; Barnes Medical College, St. Louis, 1897; bank president; also a minister; aged 81; died, July 19, of heart disease.

Samuel G. Downing, Hobbs, Ind.; Medical College of Indiana, Indianapolis, 1883; Civil War veteran; aged 81; died, August 11, of paralysis.

John Joseph Fox, Pasadena, Calif.; Boston University School of Medicine, 1876; aged 79; died, in June, of carcinoma of the prostate.

Atrias O. Williams, Providence, Ky.; University of Louisville School of Medicine, 1897; aged 51; died, July 16, of cerebral hemorrhage.

A. P. Deaver, Wimer, Okla.; Chattanooga (Tenn.) Medical College, 1904; aged 51; died, July 21, at Las Vegas, N. M., of tuberculosis.

William T. Warren, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1903; aged 62; died, July 29, of septicemia.

William Henry Bellinger ✠ Peoria, Ill.; Rush Medical College, Chicago, 1895; aged 56; died, August 5, of heart disease.

Thomas Richard Dean, Whitney, Texas (licensed, Texas, under the Act of 1907); aged 69; died, April 13, of heart disease.

W. H. Delk, Greenville, S. C.; Chattanooga (Tenn.) Medical College, 1896; aged 59; died suddenly, July 30, of heart disease.

M. L. Fishback, Warrensburg, Mo.; Louisville (Ky.) Medical College, 1880; aged 72; died, July 25, of myocarditis.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

HEXOL NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. PUCKNER, Secretary.

Hexol (formerly called Maxol), manufactured by the Sanitary Supply Co., is a pine oil soap solution stated to have the following composition:

Pine Oil, 65 per cent
Rosin Soap, 10 per cent
Cocoanut Oil Soap, 10 per cent
Water, 15 per cent.

It belongs, therefore, in the class of pine oil disinfectants which were introduced some twenty years ago in the expectation that they would replace the cresol soap solutions such as Liquor Cresolis Compositus.

The name of this unoriginal compound is not descriptive of the composition, and it is also misleading in that it suggests the product to be an alcohol containing six carbon atoms.

The preparation is claimed on the label to be "A Safe Disinfectant," "Germicide," "Antiseptic," etc. The evidence offered in support of this claim is a statement on the label which is a laboratory report on the product and which reads as follows:

"2½ Minute Period—Culture employed: Streptococcus pyogenes. Result—Culture is killed by a 1 in 350 phenol solution. Culture is killed by a 1 in 1200 HEXOL solution. The phenol coefficient of the sample submitted is 3.42."

This report is unsatisfactory in that the details of procedure are not given. Furthermore, a test with a single organism does not justify the general claim that the product is a germicide, and the claims for its use, as given on the label, for surgical scrub-up, maternity work, gargle, sterilization of surgical instruments, and general disinfectant have no justifiable basis, since evidence is not presented for its germicidal action on a variety of pathogenic organisms.

A bulletin of the Insecticide and Fungicide Board (Service and Regulatory Announcements, No. 48, July, 1924, par 59, Notice to Manufacturers of Pine Oil Disinfectants) points out that tests of pine-oil disinfectants showed that these products were effective in killing *B. typhosus* in proper dilution but were without killing action, in any dilution, on *M. aureus* and *B. anthracis*. The board expressed the opinion that these products should not be recommended for the purpose of disinfecting wounds, sores, boils, etc., and, further, that they should not be recommended or sold for general disinfecting purposes since a general disinfectant should certainly kill the pyogenic organisms. In view of this opinion of the board and considering the inadequacy of the above mentioned report, it is evident that the unqualified statements on the Hexol label, viz., "A Safe Disinfectant," "Germicide," "Antiseptic," "Disinfectant," are not adequately supported.

According to the label, Hexol is also claimed to be "Analgesic," "Non-Toxic," "Non-Irritant to Mucous Membrane." These claims are not supported by positive evidence. Satisfactory evidence is not presented for the further claim (made on the label) that Hexol gives relief in poison oak dermatitis, eczema and sunburn.

The label also contains the claim that Hexol is a deodorant. It is to be expected that the odor of the preparation will mask other more or less offensive odors, but no evidence is presented to show that Hexol will neutralize such putrefactive products as ammonia, amines, indol or hydrogen sulphide.

Hexol is unacceptable for New and Nonofficial Remedies because it is an unoriginal mixture marketed under a nondescriptive, proprietary name, and because it is marketed under claims that are unwarranted in the light of available evidence.

Correspondence

"THE ACCURACY OF ERYTHROCYTE COUNTS"

To the Editor:—The conclusions expressed in the editorial comment on "The Accuracy of Erythrocyte Counts" (THE JOURNAL, August 6, p. 454) are undoubtedly correct. The author draws attention to two classes of variables which necessitate the use of a "plus-minus" norm in the interpretation of erythrocyte counts, both of which demonstrate the fallacy lurking in "unwarranted devotion to numerical expressions." Of these two classes, he first mentions "failure to take into account the limitations of the technic employed," to which might well have been added the personal equation of the technician. He names, secondly, "variations that may be normally inherent in the processes under observation." He cites the normal postprandial fall in erythrocyte count noted by Leake, Kohl and Stebbins, and fails to develop the idea suggested except to say, "probably due to blood dilution." On this point, it appears desirable to comment.

Those who habitually use quantitative estimations of the salt, uric acid, urea and creatinine of the blood plasma as aids to metabolic diagnosis (i. e., as indicators of the capacity of the kidney to eliminate those respective substances) have also noted the varying relationship that exists between the red cell volume and the plasma after the whole blood has been centrifugalized. This relationship should be measured before the supernatant plasma has been siphoned off, and expressed in terms of percentage of the whole. It is generally agreed that the red cell volume under normal conditions should measure about 40 per cent plus or minus.

Should any condition arise that calls for water retention on the part of the kidney, the red cell volume decreases and may be as low as 20 per cent or even less. This may be properly called true hydremia. It is the first stage in an ultimate edema, the latter supervening as permeability of the vessel walls increases, the result of a series of unknown events. Obviously, water retention by the kidney is a physiologic reaction, determined by conditions in the blood stream, two of which, anyway, are known. If as the result of sepsis, acute or chronic (especially streptococcic), the ability of the kidney to excrete sodium chloride is partially destroyed or reduced to a point at which excretion of the total intake is impossible (to speak very roughly), the concentration of salt in the plasma rises and possibly also in the tissues. Water is held up for the apparent purpose of protecting the organism against a high concentration of that salt.

Again, if diabetes intervenes and the plasma sugar concentration rises, water is likewise held up by the kidneys, and apparently the same mechanism operates as in the case of salt. Such physiologic reactions, as stated, are apparently of a compensatory or defensive nature.

A situation then exists which approximates that which occurs during a postprandial fall in the erythrocyte count, likewise to be most easily demonstrated by measuring the red cell volume. Here are two definite conditions which tend to act as variables in the red cell count. How much of the apparent anemia of nephritis is due to this cause?

It must not be assumed that these reactions occur with mathematical precision. They do not. The sodium chloride concentration of the plasma being heightened, it does not necessarily mean that there is a *proportionate* decline in the red cell volume. There are unknown factors which apparently operate to destroy what might otherwise be a definite ratio. There are also known factors which are indeterminable, such as the total quantity of circulating blood, and permeability of the ultimate vessel wall.

The same thought may now be carried into the realm of blood chemistry, if a consideration of this does not carry

us too far afield. It is at present the fashion on the part of many able clinicians to disparage the significance of figures obtained from chemical examination of blood plasma for the nitrogen metabolites and for sodium chloride. It may be that part of this is the result of an "unwarranted devotion to numerical expression" and failure to recognize the fact that nearly everything that nature does is done in wide latitude and gradually. Aside from other factors, however, is the "failure to take into account the limitations of the technic employed" and especially the presence or absence of hydremia as indicated by the red blood cell volume. A urea of 40 or 50 mg. per hundred cubic centimers of whole blood is quite a different thing with a normal red cell volume than it is with a cell volume of 20 per cent; therefore the advisability of determining ureas on plasma, in which the same principle presumably operates but to a lessened degree. It is at this point that the calculation of Ambard's threshold for salt, and Van Slyke's coefficients for the various nitrogen metabolites is of greatest value in the determination of kidney function.

To interpret a red cell count properly, therefore, requires a good deal of collateral information. It would be necessary among other things to take into account the red cell volume as indicated above. This last determined, however, it supplies in itself, except under special conditions, the very information that is desired when the red cell count is ordered. Both would be of greater help if any method could be devised of estimating the total quantity of blood in circulation.

HARRIS A. HOUGHTON, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

COLLES' FRACTURE

To the Editor:—Can you tell me whether the hyperflexion treatment for Colles' fractures has been used heretofore and, if so, can you refer me to sources of information regarding it? Can you tell me where I can find a description of the so-called Pilcher treatment for Colles' fracture in vogue about thirty years ago? If you cannot or do not feel like giving this information, would you kindly refer me to a proper source for obtaining it?

ROBERT PATTERSON, M.D., Knoxville, Tenn.

ANSWER.—The method advocated by L. S. Pilcher (International Text Book of Surgery, Philadelphia, W. B. Saunders Company **1**:555, 1900; Fractures of the Lower Extremity or Base of the Radius, Philadelphia, J. B. Lippincott Company, 1917) for reducing the dorsal displacement is first to produce acute dorsal flexion of the wrist and then by traction to disimpact the fragments. The deformity is corrected by pressing the distal fragment forward as the wrist is temporarily pulled forward into palmar flexion. After reduction, he advocates the use of a pad compress anteriorly over the radius and ulna just above the site of the fracture with a compression flannel bandage over the entire forearm. In some cases he does not splint the forearm but places it in a sling with the hand and wrist hanging free. He emphasizes the importance of avoiding an anterior straight splint that presses the distal fragment upward. He recommends a narrow straight splint applied from the heads of the metacarpals to the back of the wrist and forearm. This splint is removed daily for massage after the first week, and is left off entirely at the end of three weeks.

In 1899, L. A. Stimson (A Practical Treatise on Fractures and Dislocations, New York, Lea Brothers & Co., 1899, p. 281) mentioned immobilization in palmar flexion of the wrist to prevent backward displacement of the distal fragment of the radius. He maintained that if the displacement was properly corrected there was little tendency for it to recur, and that the results of palmar flexion immobilization were disappointing.

In the last fourteen years, a number of well known surgeons following correction of the impaction and deformity have immobilized the wrist in acute palmar flexion, using plaster-of-paris bandages. F. J. Cotton (Adequate Reduction and Care in Colles' Fractures, *Boston M. & S. J.* **181**:651 [Dec. 4] 1919) advocated hyperflexion of the wrist after reduction and stated that he believed the hand recovered function more quickly than after immobilization in straight splints. He emphasized the danger of interference with circulation and advised the use of molded plaster-of-paris splints.

DELAYED BONE UNION

To the Editor:—Please advise me what influence constitutional diseases have on delayed bone union, and to what extent delay is caused by such diseases, for instance, as syphilis. Kindly omit name.

M.D., Louisiana.

ANSWER.—Local factors are believed to be the cause of delayed union or nonunion of bone in most instances. Bone healing may be retarded by constitutional diseases because of general lowering of vitality or because of their effect on the blood or on some special organ. Syphilis has been thought by some authorities to retard bone union. Cotton, however, states that he has never seen nonunion in numerous fractures treated in patients with syphilis (Dislocations and Fractures, ed. 2, Philadelphia, W. B. Saunders Company, 1924). He states that fractures in tabetic patients unite, but that healing may be delayed. There is little evidence of any specific effect in syphilis. Most authorities agree that union may be retarded in scurvy, rachitis and sepsis. Glandular disturbances may delay union. Many surgeons give thyroid extract during bone healing.

Watt (*Arch. Surg.* **10**:983 [May] 1925) believes that there is a calcium balance between the bone matrix, the osteoblasts and the blood. The osteoblasts probably are active in removing the calcium salts from the blood and depositing them in the bone. This process may be reversed in the absorption of bone grafts or of normal bone during pregnancy, prolonged lactation, or in cases of pancreatic fistula. Cotton mentions an excessive drain on the lime salts in the system as explaining the rather frequent nonunion in one or more breaks when there are multiple fractures.

Estimations should be made to determine the presence of a normal calcium and phosphorus content in the blood. In addition, Mellanby and Killick (*Biochem. J.* **20**:902, 1926) emphasize the necessity of a calcifying vitamin similar to vitamin A in the diet.

ELECTROTHERAPEUTICS—FULGURATION OF TONSILS

To the Editor:—1. Has the American Medical Association any definite information as to the value of electrotherapeutics? Is the stuff any good and what will it really do after all the bunk is taken out of it? What about this electrical removal of tonsils by fulguration? Has that been tested by any member of the research committee?

W. A. HUTTON, M.D., Melrose, Mass.

ANSWER.—Physical therapy within certain limits is of distinct value in the treatment of disease. It is a useful adjunct to medical and surgical treatment; by its use the period of disability of a patient may in many cases be materially decreased.

The effects of the different modalities available are essentially as given in the following table:

Modality	*Essential Effect*
Diathermy	Heating
Low frequency currents	Exercising of muscles
Ultraviolet radiations	Increases phosphorus and calcium metabolism
Visible radiations	Probably only heating
Infra-red radiations	Heating
Static electricity	Massaging

From the foregoing it may be concluded that diathermy and infra-red radiations are useful in the treatment of all conditions that heat would benefit. Infra-red rays, however, do not penetrate deep lying tissue. It is indicated in those conditions in which a superficial heating is sufficient.

Ultraviolet rays are indicated in any condition that calls for increased phosphorus and calcium metabolism. It has been shown to be highly beneficial in rickets, valuable in surgical tuberculosis, and also in the treatment of peritoneal tuberculosis. Certain skin diseases are benefited by ultraviolet rays. However, the results of ultraviolet rays in dermatology have not been entirely satisfactory. Ultraviolet rays are useful in sterilizing superficial lesions. They cannot, however, have any direct action on any deep lying infection because of their negligible penetrating power. In general, the effect of ultraviolet energy is that of a general tonic.

Visible rays, or light, probably have only the effect of heating. The penetration of tissue by radiations in this zone has not yet been fully determined.

In general, the method of destroying tonsils by fulguration has not yet been proved to be superior to tonsillectomy.

PREGNANCY AND HEART DISEASE

To the Editor:—I have a patient, a woman aged 26, who is anxious to have children. She had rheumatism five years ago, and has had cardiac valvular disease since then. She had cardiac decompensation at one time. She now has a mitral and aortic regurgitation, with very slight heart enlargement. Last year she became pregnant and miscarried at six and a half months, the child living one and one-half days. There was no decompensation during the pregnancy or after the labor. Should this patient be permitted to become pregnant again, in view of her satisfactory behavior during her recent pregnancy and premature labor, and notwithstanding her heart condition and history of decompensation at one time? Please omit my name and address.

M.D., Connecticut.

ANSWER.—The patient may safely be permitted to become pregnant again, but she will have to be carefully watched for signs of decompensation during the entire period of gestation, especially the first half.

THIRD DENTITION

To the Editor:—A man now apparently past middle life gave a history of having had malaria for several years during youth, and as a part of the treatment the physician repeatedly administered calomel and purposely produced salivation, which was so intense that all the teeth were completely loosened and dropped out. After the patient was 18 years of age, new teeth began to grow and continued to make up for the loss, some appearing after the twentieth year. Now he has a complete set, upper and lower, of good teeth that never cause him any trouble. And they are not the kind that can be laid aside and replaced at will. I should have said that Nature gives us two sets of teeth, and only two; but this man says he remembers having shed his milk teeth at about the usual age, and that the teeth destroyed by salivation were his permanent teeth. Isn't this a very unusual history?

D. H. REED, M.D., Kenansville, N. C.

ANSWER.—There have been reported many cases of "third dentition" but none have ever been proved. In some cases, teeth erupt after all have been supposedly extracted. Usually these are teeth that were previously impacted. In other cases, several supernumerary teeth have given the appearance of a "double set." In still others, the eruption of the permanent teeth has been delayed.

In the case reported, the age is not mentioned when this person had malaria, but it may be presumed that the deciduous teeth, with possibly a few of the permanent set, were lost as a result of the salivation. The illness, or some other condition, caused the delay in the eruption of the other permanent teeth, and the situation has been confused.

There are many cases in which less than the normal number of teeth erupt, a lesser number in which there are but a few teeth, and possibly half a dozen cases have been reported in which the patient has never had a single tooth, either deciduous or permanent.

TREATMENT OF OSTEOGENESIS IMPERFECTA

To the Editor:—I have under my care a child, now 4 years old, with osteogenesis imperfecta. Since the child was a year old it has had thirteen fractures, all of the lower extremities. The diagnosis has been confirmed by complete roentgen-ray studies. The following treatment has been given: (1) exposure (naked) to sunlight and alpine lamp treatments; (2) cod liver oil ever since the disease was first discovered; (3) medicinal treatment, including calcium and iron, quinine and strychnine arsenate. The last has been given only the last few months. Have you any suggestions as to additional treatment or revision of the treatment?

M.D., Pennsylvania.

ANSWER.—So little is known concerning the cause of this disease that attempts at successful treatment have proved futile. Heredity may play a part in those forms of the disease acquired during postnatal life. It has been maintained that if a person suffering from this disease marries a normal person, half the offspring will be similarly affected with fragility of bones. If both husband and wife should have osteogenesis imperfecta, it has been estimated that three fourths of the children will be so affected. If these observations are correct, the first point in prevention would consist in advising persons so affected against having children.

A variety of remedies have been recommended, such as glands of internal secretion, cod liver oil and calcium salts, though no results have been definitely obtained through their use. It has also been recommended that the mother should receive large amounts of fat during pregnancy and that preparations of calcium should be administered. In most instances, however, fragility of the bones is not suspected, and even if it were it is doubtful whether this treatment would be of any avail.

D. B. Phemister believes that some benefit was obtained in one of his cases by the administration of phosphorus given over an extended period. He administered 1 minim of phosphorized oil (representing $\frac{1}{100}$ grain) three times daily. He gave this drug for a period of two years and for the next two years gave $\frac{1}{150}$ grain three times daily. While there is some skepticism about the value of phosphorus, it should nevertheless be given a trial and continued over a long period.

Phosphates and hypophosphites do not act in the same way as phosphorus in stimulating calcium metabolism and causing bone repair.

MANDL'S SOLUTION

To the Editor:—Will you be good enough to supply the proportion of drugs used in Mondell's solution?

IRWIN HUEBNER, M.D., Allentown, Pa.

ANSWER.—There is a Monsell solution which is a subsulphate of iron solution. Mandl's solution, which is widely used, especially in Europe, consists of:

Iodine	0.4 Gm.
Potassium iodide	1.3 Gm.
Oil of peppermint	0.3 cc.
Glycerin	30.0 cc.

This mixture may be used in varying strengths of the iodine content, but the one here given is the most frequently used combination.

HYDROCHLORIC ACID MEDICATION

To the Editor:—If one adds ten drops of dilute hydrochloric acid in a glass of orange juice, would the patient receive the benefit of hydrochloric acid medication? The question was brought up by the reason that a physician prescribed ten drops of dilute hydrochloric acid to a glass of orange juice at mealtime to correct hypo-acidity. Is this patient receiving the benefit of the hydrochloric acid?

GERHARD KAEMMERLING, M.D., Joplin, Mo.

ANSWER.—The patient would receive the benefit of the hydrochloric acid even if he took it in orange juice.

EFFECT ON DENTAL ARCH OF PLAYING WIND INSTRUMENTS

To the Editor:—A boys' band is being organized in this city, the ages of the boys ranging from 6 years upward. The question has come up as to whether or not the blowing of wind instruments will injure the dental arch of boys of such tender years. Will you kindly give me your opinion?

M.D., Florida.

ANSWER.—There are two kinds of wind instruments, those in which the mouthpiece is pressed against the lips and those in which the mouthpiece is held between the upper and the lower teeth. The former would not be likely to cause injurious results on either the alinement of the teeth or the shape of the jaws. On the other hand, the use of such instruments would tend to strengthen the lips, preventing protrusion of the anterior teeth. Those instruments held between the teeth might tend to cause protrusion of the upper teeth in one whose permanent teeth were being erupted or had recently been erupted. If the teeth of these boys are examined from time to time, any deviation would be observed and could be corrected; but the chance for injury is so slight that one should not dissuade a child from joining the band any more than one would prevent a youth from skating because occasionally a boy injures a tooth from a fall.

BARBITAL HYPNOTICS

To the Editor:—Will you be good enough to tell me whether there are any untoward effects following the use of (1) barbital; (2) neonal; (3) allonal, when given over a prolonged period? Does any one of them act as an irritant to the kidneys? Can you recommend any other drug to induce sleep in a chronic invalid? Please omit my name.

M.D., Connecticut.

ANSWER.—Barbital is known to be capable of producing renal irritation, even anuria, in cases of acute poisoning. Epithelial necrosis of the kidney has been described in two fatal cases. The barbital habit can be acquired. It is liable to lead to mental confusion, mild delirium, ataxia, debility, gastro-intestinal irritation, anemia and hematoporphyrinuria. As neonal is a barbituric acid derivative, and allonal contains

a barbituric acid derivative, both must be suspected of possibility of kidney irritation, though report of such is not as yet available.

On the principle of employing the mildest agent that will do the work, carbromal (adalin), though a rather feeble hypnotic, is one of the best agents to try, if bromides fail.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Detroit, Sept. 12. Sec., Dr. W. H. Wilder, 122 S. Michigan Blvd., Chicago.

ALASKA: Juneau, Sept. 6. Sec., Dr. Harry C. DeVighne, Juneau.

CALIFORNIA: San Francisco, Oct. 17-20. Sec., Dr. Chas. B. Pinkham, 906 Forum Bldg., Sacramento.

COLORADO: Denver, Oct. 4. Sec., Dr. Philip Work, 1011 Republic Bldg., Denver.

CONNECTICUT: New Haven, Sept. 13. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

CONNECTICUT: State Board of Healing Arts, New Haven, Oct. 8. Prerequisite to examination. Chairman, Dr. Charles M. Bakewell, Box 1895, Yale Station, New Haven.

GEORGIA: Atlanta, Oct. 11. Sec., Dr. J. W. Palmer, Ailey.

ILLINOIS: Chicago, Oct. 4-6. Supt. of Regis., Mr. V. C. Michels, Springfield.

IDAHO: Boise, Oct. 11. Commissioner of Law Enforcement, Hon. Fred E. Lukens, Boise.

KANSAS: Topeka, Oct. 11. Sec., Dr. A. S. Ross, Sabetha.

MICHIGAN: Lansing, Oct. 11-13. Sec., Dr. Guy L. Connor, 707 Stroh Bldg., Detroit.

MONTANA: Helena, Oct. 4-6. Sec., Dr. S. A. Cooney, Power Blk., Helena.

NEW HAMPSHIRE: Concord, Sept. 8-9. Sec., Dr. Charles Duncan, Concord.

NEW JERSEY: Trenton, Oct. 18-19. Sec., Dr. Chas. B. Kelley, 1101 Trenton Trust Bldg., Trenton.

NEW MEXICO: Santa Fe, Oct. 10-11. Sec., Dr. W. T. Joyner, Roswell.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 19-22. Chief Professional Examination Bureau, Mr. Herbert J. Hamilton, Albany.

OKLAHOMA: Oklahoma City, Sept. 13-14. Sec., Dr. J. M. Byrum, Shawnee.

PORTO RICO: San Juan, Sept. 6. Sec., Dr. D. D. Biascoechea, Box 804, San Juan.

WYOMING: Cheyenne, Oct. 3-5. Sec., Dr. G. M. Anderson, Cheyenne.

Ohio April Reciprocity Report

Dr. H. M. Platter, secretary of the Ohio Medical Board, reports the reciprocity meeting held April 5, 1927, at which 13 candidates were licensed by reciprocity and 2 by endorsement of their credentials. The following colleges were represented:

LICENSED BY RECIPROCITY — College	Year Grad.	Reciprocity with
Illinois Medical College	(1905)	Indiana
Indiana University School of Medicine	(1925)	Indiana
State University of Iowa College of Medicine	(1925)	Iowa
University of Louisville School of Medicine	(1910) (1925)	Kentucky
University of Maryland School of Medicine	(1919)	Maryland
University of Michigan Medical School	(1925)	Michigan
Cornell University Medical College	(1904)	New York
Syracuse University College of Medicine	(1924)	New York
Meharry Medical College	(1925)	W. Virginia
McGill University Faculty of Medicine	(1924)	New York
University of Toronto Faculty of Medicine	(1916) (1923)	New York Pennsylvania

ENDORSEMENT OF CREDENTIALS — College	Year Grad.	Endorsement with
University of Illinois College of Medicine	(1926)	N.B.M.Ex.
Harvard University	(1925)	N.B.M.Ex.

Wyoming June Examination

Dr. G. M. Anderson, secretary of the Wyoming Board of Medical Examiners, reports the written examination held in Cheyenne, June 1-3, 1927. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. One candidate took the examination and passed. Six candidates were licensed by reciprocity. The following colleges were represented:

PASSED — College	Year Grad.	Per Cent
University of Toronto Faculty of Medicine	(1926)	85.8

LICENSED BY RECIPROCITY — College	Year Grad.	Reciprocity with
Omaha Medical College	(1892)	Nebraska
University of Nebraska	(1925, 2) (1926)	Nebraska
University of Pennsylvania School of Medicine	(1926)	Pennsylvania
University of Vermont College of Medicine	(1921)	Vermont

Medical Economics

TAXING THE SALARIES OF MEDICAL DIRECTORS OF COUNTY HOSPITALS

A recent Income Tax Office Decision[1] declares the salary of the medical director of a county hospital, for 1925 and for subsequent years, subject to taxation under the income tax law. The decision is based on the contention that a county in operating a hospital is engaged in a proprietary rather than a governmental function. Salaries received by an individual for personal services as an officer or employee of the state or political subdivision thereof, for 1924 and for prior years, are by the Revenue Act of 1926[2] declared exempt, whether such services were rendered in connection with a governmental or with a proprietary activity.

It is a fundamental principle of law that the federal government cannot tax the governmental activity of the states or of their political subdivisions.[3] This principle was recognized early in the administration of the income tax laws, when, shortly after the approval of the Revenue Act of 1918, the Attorney-General of the United States rendered an opinion to the effect that the salaries and wages of state employees and officials were not liable to the income tax imposed by that act. He said:

> This conclusion rests upon the well settled rule that the governmental agencies of the states are not subject to taxation by the federal government. . . . It (the Revenue Act) does not specifically mention, by way either of inclusion or exclusion, salaries or wages of state officials or employees. Since, however, there cannot be any doubt that such wages and salaries are beyond the taxing power of Congress, it cannot be assumed that they were intended to be included under the general head of wages and salaries mentioned in the act. The act must be construed as applying only to such wages and salaries as can be constitutionally taxed by the federal government. . . .[4]

The decision of the Income Tax Bureau does not give any inkling as to the grounds on which it is concluded that a county in operating a hospital is engaged in a proprietary rather than a governmental activity. The decision apparently covers all hospitals operated by counties, and the principles underlying it can be applied to municipal hospitals and to hospitals conducted by the states themselves.

The question with respect to what is a governmental activity has been before the courts on numerous occasions and it has been repeatedly held that those agencies through which the states immediately and directly exercise their sovereign powers are governmental.[5] In one case,[6] the court held that a city in operating a street railway was engaged in a governmental activity and that employees were not subject to the federal income tax. In another,[7] it was held that a municipality in operating a ferry was exercising "a strictly governmental function." Again, it has been held[8] that the maintenance of a public park is the discharge of a public or governmental duty. In an early case,[9] the United States Circuit Court recognized the duty of the state to preserve the health of its citizens. After declaring "public duties" to be those exercised by the state as a part of its sovereignty for the benefit of the whole public, the court said:

> Familiar examples of such governmental duties are the duty of preserving the peace and the protection of property from wrongdoers, the construction of highways, *the protection of health*, and the prevention of nuisances. The execution of these duties is undertaken by the government because there is a universal obligation rising upon the government to protect all of its citizens, and because the prevention of crime, *the preservation of health*, the construction of means of intercommunication are benefits in which the whole community is alike and equally interested.

1. May, 1927, Cum. Bul. p. 2 (VI-22-3247 : I. T. 2357).
2. Revenue Act of 1926, section 1211.
3. Collector v. Day, 11 Wall. 113; Pollock v. Farmers Loan & Trust Company, 157 U. S. 429.
4. 31 Opinions Attorney-General 441, May 6, 1919.
5. Metcalf & Eddy v. Mitchell, 269 U. S. 514.
6. Frey v. Woodworth, 2 Fed. (2d) 725.
7. U. S. v. King County, 281 Fed. 686.
8. City of Kokomo v. Lay (Ind.), 110 N. E. 694.
9. Hart v. Bridgeport, 11 Fed. Cas. 681, 13 Blatchf. 289, decided in 1876.

Dillon, in his work on Municipal Corporations,[10] says:

> The power or even duty on the part of a municipal corporation to make provision for the public health and for the care of the sick and destitute appertains to it in its governmental or public, and not in its corporate or as it is sometimes called, private capacity. And therefore, where a city, under its charter and general law of the state enacted to prevent the spread of contagious diseases, establishes a hospital, it is not responsible to persons injured by reason of the misconduct of its agents or employees therein.

The operation of an isolation hospital,[11] of an insane hospital,[12] of a municipal general hospital,[13] has been held to be the exercise of a governmental rather than a proprietary activity. Many other decisions of similar import are on record and were, it may be assumed, available for the use of the income tax bureau. With these decisions before it, it would be interesting to know how the income tax bureau reached the conclusion it did. Probably the decision will fail to receive the sanction of the courts. Yet the inconvenience and financial loss a court proceeding will place on the physician contesting it are not likely to be repaid. In individual cases the amount of the tax will perhaps be so small that payment will seem less onerous than a contest. Here lies the danger of our present form of procedure in these matters.

10. 4 Dillon, Municipal Corporations 5 Ed. Par. 1661.
11. Butler v. Kansas, 97 Kan. 239, Ann. Cas. 1918 D. 801.
12. University of Louisville et al. v. Medcalf (Ky.), 287 S. W. 945.
13. Young v. City of Worcester (Mass.), 149 N. E. 204; Wallwork v. City of Nashville (Tenn.), 251 S. W. 775; Zummo v. Kansas City (Mo.), 225 S. W. 934.

Book Notices

A PRACTICAL TREATISE ON DISEASES OF THE SKIN FOR THE USE OF STUDENTS AND PRACTITIONERS. By Oliver S. Ormsby, M.D., Clinical Professor and Chairman of the Department of Dermatology, Rush Medical College of the University of Chicago. Third edition. Cloth. Price, $11. Pp. 1262, with 524 illustrations. Philadelphia: Lea & Febiger, 1927.

The author points out that thirty new diseases are described and that several sections of the book have been rewritten for this edition. The literature has not been covered completely, but a selection has been made of material that seems to constitute a permanent contribution. Seventy-six new illustrations have been added and the revision has been thorough. The volume therefore constitutes an up-to-date textbook in its field, and is well printed on coated paper. It is provided with an extensive index, which makes reference easy for the student who is concerned with the entire subject or for the practitioner who is investigating a single disease.

SOCIAL FACTORS IN MEDICAL PROGRESS. By Bernhard J. Stern, Ph.D. Cloth. Price, $2.25. Pp. 136. New York: Columbia University Press, 1927.

This is a study of the factors that obstruct the progress of culture. The author says in his introduction, "Sociologists have recently been investigating the nature of the behavior of culture during the process of change." In this particular study medicine "was chosen for such an inquiry because, in measuring the value of an innovation, the subjective factor can be eliminated to a greater degree than when dealing with the subject matter of politics, religion, art or economics." This suggests an interesting inquiry. In the first chapter there is a good analysis of the factors that interfere with intellectual progress, not only in medicine, but in culture generally. Then he proceeds in the succeeding chapters to illustrate these various obstructive features by the history of medicine. These subsequent chapters cannot be said to be equally interesting. They are an analysis of factors that are generally assumed by intelligent men as evident and accepted. It is a sort of exposition of the obvious. It has a certain element of interest as a view of medicine from one on the outside. It is not particularly critical, particularly sympathetic or particularly accurate. Of course, the same analysis could be made of the obstacles to the advancement of culture in any line of intellectual endeavor. For example, there is a chapter on the dependence of discovery on existing knowledge. This certainly applies to medicine as it does to every other calling. We all climb from the shoulders of our ancestors. "Harvey . . . was a product of his time." So, naturally, were Benjamin Franklin, Napoleon, Sir Humphry Davy, Lincoln and Edison. Similar analogies could be made to every point in the book. Altogether the author has made rather a painstaking investigation of the history of medicine to find illustrations in support of theses that are already universally accepted by men who think at all about the progress of civilization. Apparently "Human Factors in Medical Progress" would be a better title, for the factors are by no means all social. Perhaps even a better title than that would be "The Adverse Effect of Human Weaknesses on Human Progress, as Illustrated by Medicine."

ANLEITUNG ZUR UNTERSUCHUNG DER LEBENSMITTEL. Von J. Grossfeld, Nahrungsmittelchemiker am Untersuchungsamte in Recklinghausen. Paper. Price, 22.50 marks. Pp. 409, with 26 illustrations. Berlin: Julius Springer, 1927.

This volume is intended as an introduction to the very comprehensive and authoritative "Chemie der Nahrungs und Genussmittel" by König as well as to the same author's "Lehrbuch über Nahrung und Ernährung des Menschen." The author asserts that he has incorporated the latest modifications of the methods employed in the examination of foods; it would, however, have been far better to omit the brief references to such matters as the determination of hydrogen ion concentration or the "chemical and biologic" detection of vitamins, and to substitute more detailed and accurate descriptions of such methods as the estimation of reducing sugars and total nitrogen. In no case is there a truly critical treatment of any of the material. In addition to the usual methods used for the proximate analysis of foods, more specific methods are given for the analysis of beverages, water, air and soaps. In many cases chemical specifications are given, as for the composition of the enamel of cooking utensils and the rubber goods used in connection with food preservation, toys and infant feeding. The last sixty-five pages are devoted to various tables for simplifying calculations of analyses.

HERNIA AND HERNIOPLASTY. By Ernest M. Cowell, D.S.O., M.D., B.S., Surgeon, Croydon General Hospital. With an introduction by Sir Arthur Keith, F.R.C.S., F.R.S. Cloth. Price, 9/-net. Pp. 128, with 72 illustrations. London: H. K. Lewis & Company, Ltd., 1927.

This small monograph is devoted chiefly to a consideration of inguinal hernia. The chapters on etiology and anatomy are complete. The author gives much space to the congenital or saccular theory, and believes that it should be generally accepted as the cause of all oblique inguinal hernias. He states that "even when a potential sac is present no hernia results if the shutter action of the internal oblique is effective." This fact explains why a small empty congenital sac may remain empty throughout one's life. If surgeons will make a practice of doing a bilateral operation on patients who believe they have only a single hernia, they will almost always be rewarded by finding a small or large empty sac on the so-called sound side. The diagnosis and differential diagnosis of inguinal hernia are thoroughly discussed, and Cowell describes in detail his flap operation, which gives a high percentage of cures. The aponeurotic flap is fashioned and placed as a sling under the cord at the internal ring. The discussion of industrial hernia—a subject that is becoming an increasingly serious problem for all employers of labor—will be of interest to all who have to deal with this disability.

X-RAY DIAGNOSIS: A Manual for Surgeons, Practitioners and Students. By J. Magnus Redding, F.R.C.S., Senior Surgical Radiologist to Guy's Hospital. Cloth. Price, $7. Pp. 228, with 80 illustrations. New York: William Wood & Company, 1927.

This book is one of the best that has appeared for some time. It is brief and well written and yet covers all important details in roentgen-ray diagnosis. It is conservative. A point of commendation is that no attempt has been made to give technic or to fill the book with pictures of transformers and roentgen-ray tubes. If any criticism can be made, it is that the illustrations are not on a par with the text. It would seem that in a book of this size too much attention has been given to bone development and congenital defects. This book may be recommended to the student, practitioner or specialist.

NURSING MENTAL AND NERVOUS DISEASES FROM THE VIEW-POINTS OF BIOLOGY, PSYCHOLOGY AND NEUROLOGY. A Text-Book for Use in Schools for the Training of Nurses. By Albert Coulson Buckley, M.D., Medical Superintendent, Friends Hospital, Frankford. Cloth. Price, $3. Pp. 312, with 57 illustrations. Philadelphia: J. B. Lippincott Company, 1927.

Either the nurses are expected to have a most complete grounding in nervous and mental diseases or this book is meant for superior medical attendants, i. e., the general and special physicians; otherwise there is much unnecessary anatomic and physiologic matter in this book. In the first forty-five pages the author prepares the anatomic and physiologic foundation. There are chapters on biology, the vertebrate nervous system, mental processes in health and disease, subjective experience-thinking, classification of the psychoses, the organic psychoses, psychoses with bodily disease, intoxication psychoses, the manic depressive psychoses and schizophrenic psychoses, the psychoneuroses, paranoia and paranoid states, mental defect, mental nursing, special nursing procedures, diseases of the nervous mechanism, diseases of the nerves, diseases of the spinal cord, and diseases of the brain and general nervous system. There are many statements made in a concise manner that are valuable as educational propaganda, not only to nurses and other less medical people but also to medical men; as for instance, "it should be emphasized . . . that the mentally ill person does not use any methods of thought which differ from the mental activities used by persons in health," or wherein the author warns against attempts to deceive a mentally ill person on the ground that it is for his benefit. Also a warning against overemphasizing the possibilities of mental hygiene. Also the author's discussion of the feeling of disgrace suffered by the mentally ill and family. The chapters on mental nursing and special nursing procedures seem proportionately unimportant in view of the title of the book. One wishes there were more space given to illustrations of proper technic in the nursing line and less space to illustrations of nerve cells. There are one or two pages of references, a four page glossary, and a comprehensive index.

YOUR NERVOUS CHILD. A Guide for Parents and Teachers. By Erwin Wexberg, M.D. Authorized translation into English by Walter Béran Wolfe, M.D., F.R.S.M. Cloth. Price, $1.75. Pp. 178. New York: Albert & Charles Boni, 1927.

The mental hygiene of childhood has been so extensively discussed that the literature is now large. This volume is an exposition of the views of Alfred Adler of Vienna on the prevention of nervousness and behavior disorders, written for the parent and the teacher. For the most part the language is simple and easily understood by the layman and there is much that is enlightening and instructive. All disorders of behavior are analyzed on the basis of lack of courage or "feelings of inferiority," and the author frankly admits that it is a "single-track" view of the facts. While this makes the problems appear altogether too simple, even though it does not render the task of training a child to a courageous attitude toward life the easiest task in the world, there is still much that will be of help to parents and teachers and that might be read with profit by physicians who have as yet been little attracted by this important phase of prophylactic medical work.

SÉMIOLOGIE DES AFFECTIONS DU SYSTÈME NERVEUX. Par J. Dejerine, professeur de clinique des maladies du système nerveux à la Faculté de médecine de Paris. Second edition. Cloth. Price, 190 francs. Pp. 1219, with 563 illustrations. Paris: Masson & Cie, 1926.

This work by the great French master needs no introduction to neurologists. The second edition appeared in 1914, the first having been published in 1900; the present issue is a reprint without change, published at the request of many who have been unable for years to secure copies. The text is a masterly and authoritative presentation of neurologic symptomatology classified not by diseases but according to disturbances in function. The material is profusely documented and illustrated from actual cases and the publishers have added an index which makes the book readily accessible for reference purposes. This book should be in every library and will be of the utmost value to students as well as to practicing neurologists.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

AN ILLUSTRATED KEY TO THE IDENTIFICATION OF THE ANOPHELINE LARVAE of India, Ceylon and Malaya, West of Wallace's Line, with Practical Notes on Their Collection. By C. Strickland, M.A., B.C., and K. L. Choudhury, M.B., D.P.H., Chief Assistant in Malaria Surveys of Assam and Bengal from the School of Tropical Medicine, Calcutta. With a foreword by Sir Ronald Ross, K.C.B., K.C.M.G., F.R.S. Boards. Price, Rs. 4/8. Pp. 67, with illustrations. Calcutta: Thacker, Spink & Company, 1927.

Guide to the nature of the young Hindoo mosquitoes.

HEALTH BEHAVIOR. A Manual of Graded Standards of Habits, Attitudes, and Knowledge Conducive to Health of the Physical Organism, and of Personality, Home, Community and Race. By Thomas D. Wood, M.D., Professor of Health Education Teachers College, Columbia University, and Marion Olive Lerrigo, Ph.D., Staff Associate, American Child Health Association. Cloth. Price, $2. Pp. 150. Bloomington, Illinois: Public School Publishing Company, 1927.

Outline for estimating the child's health habits.

DISORDERS OF THE NOSE, THROAT AND EAR. Problems of Deafness. By Aaron Roth, M.D., F.A.C.S., Attending Ear, Nose and Throat Surgeon, Jewish Hospital, Brooklyn. Cloth. Price, $2.50. Pp. 238, with 29 illustrations. Brooklyn: Physicians and Surgeons Book Company, 1927.

An unsuccessful attempt at popular education in otolaryngology which turns out to be merely a poor medical textbook.

OVERCOMING TUBERCULOSIS: An Almanac of Recovery. By Gerald B. Webb, M.D., Consulting Physician, Cragmor and Glockner Sanatoria, and Charles T. Ryder, M.D., Cragmor and Glockner Sanatoria. Third edition. Cloth. Price, $2. Pp. 81, with illustrations. New York: Paul B. Hoeber, Inc., 1927.

New edition of one of the best booklets for the tuberculous patient.

ASPECTS ACTUELS DE LA PHYSIOLOGIE DU MYOCARDE. (Première série.) L'onde d'excitation motrice, son origine, sa propagation, ses manifestations électriques. Par Henri Frederico, professeur de physiologie à la Faculté de médecine de Liége. Boards. Pp. 300, with 132 illustrations. Paris: Universitaires de France, 1927.

Monographic consideration of the physiology of the heart beat.

ALLGEMEINE UND EXPERIMENTELLE PATHOLOGIE NACH VORLESUNGEN FÜR STUDIERENDE UND AERZTE. Von Dr. Hermann Pfeiffer, o. ö. Professor und Vorstand der Lehrkanzel für allgemeine und experimentelle Pathologie an der Universität Graz. Second edition. Paper. Price, 22.50 marks. Pp. 649, with 64 illustrations. Berlin: Urban & Schwarzenberg, 1927.

Newest edition of standard German guide to pathology.

MALARIA: Its Investigation and Control with Special Reference to Indian Conditions. By Robert Knowles, Major, Indian Medical Service, and Ronald Senior-White, Malaria Research Officer, Central Malaria Bureau, Government of India. Boards. Price, Rs. 7/8. Pp. 220, with illustrations. Calcutta: Thacker, Spink & Company, 1927.

System of control of malaria in India.

A POCKET GUIDE TO MEDICAL LIFE ASSURANCE. Compiled by Jehangir J. Cursetji, M.D., L.R.C.P., L.R.C.S., Chief Medical Officer, The Oriental Life Assurance Co. Second edition. Cloth. Pp. 92, with illustrations. Bombay: Times Press, 1927.

Brief outline of methods of making life insurance examination.

MANUAL OF VETERINARY BACTERIOLOGY. By Raymond A. Kelser, D.V.M., Ph.D., Captain, Veterinary Corps, United States Army. Cloth. Price, $5.50. Pp. 525, with 87 illustrations. Baltimore: Williams & Wilkins Company, 1927.

A demonstration that animal care is just as complicated a science as that of the human being and possibly more so.

YOUR MONEY'S WORTH. A Study in the Waste of the Consumer's Dollar. By Stuart Chase, and F. J. Schlink. Cloth. Price, $2. Pp. 288. New York: Macmillan Company, 1927.

Shows the evils attendant on American advertising and high pressure salesmanship.

DIE MORPHIN-ERKRANKUNGEN. Von Dr. Benno Hahn. Paper. Pp. 163. Heidelberg: Herbert Grossberger, 1927.

TEXT-BOOK OF BACTERIOLOGY. By William W. Ford, M.D., Professor of Bacteriology, School of Hygiene and Public Health, Johns Hopkins University. Cloth. Price, $8.50 net. Pp. 1069, with 186 illustrations. Philadelphia: W. B. Saunders Company, 1927.

A textbook for students and practitioners of medicine with a great amount of detail for reference.

LOS ACTUALES CONOCIMIENTOS DEL METABOLISMO MINERAL. La importancia fisiológica, patológica, terapéutica e higiénica de los elementos minerales contenidos en los alimentos y en el agua. Por el Dr. José M. Rosell. Paper. Price, 12 pesetas. Pp. 78. Barcelona, 1927.

Importance of mineral elements of food and water.

EDITORIAL SILENCE. The Third Era in Journalism. By Robert T. Morris. Cloth. Price, $2.50. Pp. 256, with 1 illustration. Boston: Stratford Company, 1927.

A philosophical contribution to the publicity problems of today.

SEGREGATION AND AUTOGAMY IN BACTERIA. A Contribution to Cellular Biology. By F. H. Stewart, M.A., D.Sc., M.D. Boards. Price, 7/6 net. Pp. 104, with illustrations. London: Adlard & Son, Ltd., 1927.

A monographic elucidation of the life cycle of the germ.

WORKERS' HEALTH AND SAFETY: A Statistical Program. By Robert Morse Woodbury. Cloth. Price, $2.50. Pp. 207. New York: Macmillan Company, 1927.

A statistical study of accidents in industry.

MOTHER INDIA. By Katherine Mayo. Cloth. Price, $3.75. Pp. 440, with 41 illustrations. New York: Harcourt, Brace & Company, 1927.

Well written study of social conditions in India.

MODERN MEDICINE: Its Theory and Practice in Original Contributions by American and Foreign Authors. Volume IV. Diseases of the Respiratory System—Diseases of the Circulatory System. Edited by Sir William Osler, Bart., M.D., F.R.S. Third edition, revised and re-edited by Thomas McCrae, M.D., Professor of Medicine in the Jefferson Medical College, Philadelphia, assisted by Elmer H. Funk, M.D., Assistant Professor of Medicine, Jefferson Medical College, Philadelphia. Cloth. Price, $9. Pp. 1011, with illustrations. Philadelphia: Lea & Febiger, 1927.

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KEY-CATALOGUE OF THE CRUSTACEA AND ARACHNOIDS OF IMPORTANCE IN PUBLIC HEALTH. By C. W. Stiles and Albert Hassall. Treasury Department, United States Public Health Service. Hygienic Laboratory Bulletin No. 148. Paper. Price, 15 cents. Pp. 197-289. Washington: Government Printing Office, 1927.

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PATHOGENESE UNL THERAPIE ALIMENTÄRER KLEINKINDERANÄMIEN MIT BESONDERER BERÜCKSICHTIGUNG DER SOGEN. "ZIEGENMILCHANÄMIE." Von Dr. H. Baar. Paper. Price, 2.20 marks. Pp. 44, with 11 illustrations. Berlin: S. Karger, 1927.

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PREVENTING DIPHTHERIA IN NEW YORK STATE. Paper. Price, 10 cents. Pp. 30. New York: State Committee on Tuberculosis and Public Health State Charities Aid Association, 1927.

EL PROBLEMA DE LAS FEBRICULAS. Por G. Marañon, medico del Hospital General de Madrid. Paper. Price, 3 pesetas. Pp. 194. Madrid: Ruiz Hermanos, 1927.

DIE MALARIABEHANDLUNG DER FRÜHLUES. Von J. Vonkennel. Paper. Price, 4.20 marks. Pp. 61, with 5 illustrations. Berlin: S. Karger, 1927.

Miscellany

PROHIBITION IN ENGLAND

General prohibition is not a political issue in England, but "local option," which involves local prohibition, is. The debate on the liquor (popular control) bill, introduced into the House of Lords by the bishop of Liverpool, should be of especial interest in America. The bill proposes to give to the inhabitants of large areas, such as boroughs of more than 50,000 population, the right of deciding periodically whether they are to have no change from the present system of commercial competitive ownership of the liquor trade, or whether the trade is to be reorganized under a system of public control, or whether the sale of intoxicants is to be abolished. From the medical standpoint the important speech was by Lord Dawson, physician to the London Hospital. He said that they had some experience of what Sunday prohibition meant. On Sunday mornings, charabanc parties started off to the nearest wet area. If that was too far away the people stored up alcohol during the week in the rooms of one of them, and they had a "jolly" on Sunday. They saw what was taking place under prohibition on the other side of the Atlantic; an ocasional drink was converted into an occasion for drinking. He doubted whether fermented liquor could be banished from civilization. It had become part of the lives of all civilized people. In this country, from time immemorial, it had been associated with our foregatherings and social functions. Prohibition in other countries had led to all the illegalities of bootlegging, more drinking among the young of both sexes, and to a general contempt of the law. Temperance had greatly increased in this country. He suggested an inquiry into the causes of this happy improvement, and he believed that by fostering those causes more good would be done in a few years than in a generation by prohibition. Far less drunkenness was to be seen in this country than in America. From statistical evidence which he had collected, he found that of people who frequented certain large restaurants, 75 per cent did not drink any alcohol at all, and, of the remaining 25 per cent, three fourths drank either light wines or beer, while only one fourth drank whisky or port. Those figures were obtained three years ago, and he had recently inquired whether they had become better or worse. In one huge restaurant the number of those who took alcohol had gone down from 25 to 17 per cent, and in another to 7 per cent. In an inquiry among clerks, he found that of those over 40, 21 per cent were abstainers, and of those under 40, 40 per cent were abstainers. In the army a large majority of our young soldiers did not drink. Drinking over business, again, was far less frequent than in the past. He had extended his inquiries to include the unskilled working class, and from an examination of the records of between 1,500 and 1,600 people he found that under 35, the temperate people and the abstainers amounted to 90 per cent and the imperfectly temperate to 10 per cent. Over 35, the temperate people and the abstainers came to 71.5 per cent, and the imperfectly abstaining class to 28.5 per cent. Taking the abstaining people alone, under 35 they amounted to 51 per cent, and over 35 to 22.5 per cent. It might be said from those figures that people grew into drink. That was a fallacy. People did not become drunken when once they had acquired temperate habits up to the age of 35. The figures given showed that our people were becoming steadily more sober in their attitude toward alcohol. We were, broadly speaking, a sober country. It was said that the diminution of drinking was caused by restricted hours and higher prices. Restricted hours had promoted temperance, and he would support the continued restriction of hours, provided it was made uniform,

but he believed that higher prices of alcoholic liquor had little influence. What had produced the change? Better housing, for one thing; the love of fresh air and the constant desire to be out in the country; the greater companionship of women and men; and he would put beyond all other causes the great love of physical fitness. Women had become more athletic owing to their more sensible clothing, and that had encouraged a desire for physical fitness. There they had the key to what could be done at comparatively small cost. Advantage should be taken of all those forces. They should foster education, go on improving housing, and improve the chances of games and outdoor sports being enjoyed. If those things were done for ten years, and if health lectures were given all over the country, not by fanatics preaching the evil of this, that and the other thing, but by those who would teach the people what health meant, what open air and good food meant, and what the disadvantages of alcohol really were, they would get far greater success in any campaign of temperance than by the provisions of the bill.

Medicolegal

Functions Validly Delegated by Medical Practice Act

(People v. Hawkinson (Ill.), 155 N. E. R. 318)

The Supreme Court of Illinois, in affirming a judgment of conviction, says that one count of the information charged that the defendant held himself out to the public as being engaged in the diagnosis and treatment of ailments of human beings as a business or profession, without having a license as required by the medical practice act, while the second count charged that he treated human ailments by a system or method known as chiropractic, without having a license so to do; both on Sept. 2, 1925. He was found guilty on both counts.

He contended that the medical practice act, and particularly that portion of it prescribing the requirements of an applicant for a license for the practice of any system or method of treating human ailments without the use of drugs or medicines, and without operative surgery, is unconstitutional, in that it provides that, before an applicant may take an examination, he must be a graduate of a school which is reputable and in good standing in the judgment of the department of registration and education. His position was that this is a delegation by the legislature of its legislative functions to said department, and is therefore invalid. Legislative power is the power to enact laws, or declare what the laws shall be. Judicial power is the power which adjudicates on the rights of citizens, and to that end construes and applies the law. The legislature cannot deal with the details of every particular case, and the manner of executing a law must necessarily be left to the reasonable discretion of administrative officers, and the exercise of that discretion does not constitute the exercise of judicial power. An administrative agency, empowered to issue licenses to engage in certain professions, must necessarily exercise quasijudicial power in determining whether a license shall be issued; but the exercise of this power is only incidental to the duty of administering the law relating to the regulation of a particular calling or profession, and in so doing it is not exercising judicial power, within the meaning of the constitutional provision that no person or collection of persons, being one of the three departments of the state, shall exercise any power belonging to either of the others, except as in the constitution expressly directed or permitted.

While the legislature cannot arbitrarily interfere with the enjoyment of rights guaranteed by the constitution, and cannot invest any board or commission with arbitrary discretion, which may be exercised in the interest of a favored few, or which affords opportunity for unjust discrimination, it is a matter of common knowledge that in the past there have been medical schools of all kinds, from those of the highest standing to the fake school, or so-called diploma mill, and manifestly it would be absolutely impossible for the legislature itself to pass on the qualifications of all the various schools in the country, and on the qualifications of their graduates, and this power must therefore be lodged in some administrative body. Section 20 of the act provides that the "act shall not be so construed as to discriminate against any system or method of treating human ailments, or against any medical college, or any professional school, college or institution teaching any system or method of treating human ailments." The department, under the act, is not permitted to act arbitrarily, and its actions in the premises are subject to review by the courts. The act itself fixes minimum standards of professional education to be enforced by the department in conducting examinations and issuing licenses. In *People v. Walder*, 317 Ill. 524, 148 N. E. 287 (a case in which a chiropractor contended that this act was unconstitutional), this court said: "This act meets the constitutional objections which rendered void the earlier medical practice acts and is valid legislation."

Unauthorized Removal of Tonsils—Function Presumed

(Hively v. Higgs (Ore.), 253 Pac. R. 363)

The Supreme Court of Oregon, in affirming a judgment for $1,000 damages in favor of the plaintiff, says that she alleged that the defendant advised her that it was necessary for her to have an operation performed on the septum of her nose, that he was employed to perform the operation, and that, while she was under an anesthetic, instead of operating on the septum, he removed her tonsils, "causing plaintiff to suffer great physical pain and will for all time to come so cause plaintiff to suffer great physical pain." The words quoted were added to the complaint by an amendment which was permitted to be made at the close of the introduction of the evidence. Permitting the amendment was not an abuse of discretion as it added no new or different cause of action to the complaint.

The evidence as to whether or not the plaintiff authorized the defendant to remove her tonsils was conflicting. That controversy then became a question of fact, and, having been determined by the jury in favor of the plaintiff, could not be retried by the supreme court.

The instant case did not present a condition discovered during an authorized operation which required another operation, nor an emergency demanding immediate attention in order to save the life of the patient, in the opinion of the surgeon. Nor was it a case in which simply general directions were given by the patient authorizing the surgeon to do whatever was necessary in his judgment for the benefit of the patient. No charge was made in the complaint, nor was there any attempt to prove by evidence that the defendant was unskilful in the operation he performed. The basis for relief was solely that the operation performed was unauthorized. The question of negligence in performing the operation was not involved in the case.

The defendant requested an instruction, which was not given, that, even though the jury should find that the defendant breached the contract between himself and the plaintiff, the most that the latter could recover was nominal damages, which in this case would be one dollar, and that if the jury should find for the plaintiff, the jury could not award in excess of one dollar. The defendant was not entitled to that instruction. It is very doubtful that the plaintiff should ever be limited to nominal damages where he has been subjected to an operation without his consent. Such an operation constitutes technical assault and battery. Because the physicians have been unable to learn the precise functions of the tonsils is not sufficient reason for concluding that they have no functions. The law presumes that every organ, including glands, has some function to perform in maintaining the body in sound health. That presumption is not overcome because medical science has not yet ascertained the precise function performed by any specific organ or gland. In addition to that, there was evidence that the plaintiff in this case suffered severe pains for some considerable time and that her throat troubled her to the date of the trial two years later. It was conceded in the brief for the defendant that pain would

naturally result from the operation. Evidence was introduced without objection in behalf of the plaintiff that she suffered pain. Later the defendant objected to such evidence because there was no allegation to that effect in the complaint. The evidence of pain having been introduced without objection, especially in view of the fact that it is a natural result of an operation, was competent and supported the amendment permitted over the objection of the defendant. Pain is an element of damages in such cases. An assault is always actionable.

This court believes that it was competent for the jury to assess such damages in the instant case as in their sound judgment the plaintiff had suffered, notwithstanding no witness was able to estimate in dollars and cents the plaintiff's actual damages. The removal of her tonsils by the defendant without her authority or consent was a trespass on her person for which she was entitled to compensation. This court cannot say as a matter of law that the amount allowed by the jury was excessive.

Right of Incurable Employee to Continued Treatment

(Eberle v. Miller et al. (Minn.), 212 N. W. R. 190)

The Supreme Court of Minnesota says that the claimant in this proceeding under the workmen's compensation act, opposed by the employer and the insurer, sustained a fracture of his spine, causing a paralysis of the lower part of his body. The accident occurred in September, 1922, and from that date up to Dec. 2, 1925, he was paid compensation to the amount of $3,024, and in addition $4,357.85 was paid for hospital and medical expenses. Then the insurer notified him that, as operating treatment and further medical and hospital care would not bring about a cure, it felt that it should be relieved of further medical and hospital expense, and would discontinue paying it. It was conceded that his injuries rendered him practically helpless and unable to control the action of the bowels and urinary organs, requiring the attention of some one almost constantly to care for him. The compensation act in force at the time of the injury provided:

> Such medical, surgical and hospital treatment, including nursing, medicines, medical and surgical supplies, crutches and apparatus, including artificial members, as may reasonably be required at the time of the injury, and during the disability for not exceeding ninety days and not exceeding $100 in value, to cure and relieve from the effects of the injury, shall be provided by the employer, . . . provided, however, that on request by the employee made during or after said period of ninety days and necessity being shown therefor the industrial commission may require the above treatment, articles and supplies for the cure and relief from the effects of such injury for such further time and amount as is just under the facts shown.

The controlling issue here under consideration was whether an employee who has sustained accidental injury in the course of his employment, resulting in total permanent disability, is entitled to further medical and hospital treatment when all has been done that can be done to cure or improve his condition resulting from such injury. Had the accident resulted in the amputation of a limb, instead of the fracture of the spine, and the stub had healed completely, and yet it was considered reasonably necessary that the employee have an artificial limb, would not the employer, under the language of the act, be liable for the reasonable expense in procuring it? The artificial member would in no sense be considered a remedy or cure for the injury, though it would materially assist in relieving the man from the effect of the accident. The very provisions of the act render the employer liable for the expense incurred in providing treatment, including crutches and artificial members, such as may reasonably be required at the time and during the disability to cure and relieve from the effects of the injury for not to exceed the time and amount provided for in the statute or fixed by the commission. The legislative intent must have been to relieve as well as to cure; otherwise the provision for artificial members would render the act absurd and ambiguous. The court thinks that the words *cure and relieve* were intended to mean the same as *cure or relieve* and should be so construed.

The provision of the act relating to the necessity for further treatment places that matter in the discretionary power of the commission, which should afford the employer ample protection. However, the matters here for consideration were whether the employer and the insurer were liable for treatment and care of the claimant subsequent to Dec. 2, 1925, and, if so, for how long and for what amount. The former question was determined by the commission, and, under the facts shown, this court should not interfere. The uncontroverted testimony of the attending physician and nurses was to the effect that, if the patient did not have proper care, he would have bed sores, dangerous to his life, and that a nurse would have to be in constant attendance and a physician should see him from time to time. The length of time which such liability is to continue rests in the discretion of the commission. The amount for which the employer is liable is clearly fixed by the statute at not to exceed the rate of $100 for each ninety days.

Harrison Narcotic Law Again Held Valid

(Alston v. United States (U. S.), 47 Sup. Ct. R. 634)

The Supreme Court of the United States, in affirming a judgment of conviction of defendant Alston, says that he was charged with violating section 1 of the Harrison Narcotic Law as amended by act of Feb. 24, 1919, by purchasing morphine and cocaine from unstamped packages. The judgment of the trial court was assailed on two grounds: That Congress has failed to prescribe any punishment for the purchase of drugs from unstamped packages, forbidden by amended section 1; and that the entire act, as amended, is invalid because Congress has undertaken thereby to regulate matters beyond its powers and within exclusive control of the states. Section 9 of the original Harrison act has remained without change. It provides:

> That any person who violates or fails to comply with any of the requirements of this act shall, on conviction, be fined not more than $2,000, or be imprisoned not more than five years, or both, in the discretion of the court.

Section 9 obviously applies to the requirements of the amended act as well as to those found in the original. The first objection has no merit. The present cause arose under those provisions of section 1 which impose a stamp tax on certain drugs and declare it unlawful to purchase or sell them except in or from original stamped packages. These provisions are clearly within the power of Congress to lay taxes and have no necessary connection with any requirement of the act which may be subject to reasonable disputation. They do not absolutely prohibit buying or selling; have produced substantial revenue—contain nothing to indicate that by any colorable use of taxation Congress is attempting to invade the reserved powers of the states. The impositions are not penalties.

Requiring Examination to Be at Physician's Office

(Brown v. Hutzler Bros. Co. (Md.), 136 Atl. R. 30)

The Court of Appeals of Maryland says that it was alleged in the declaration in this action to recover damages for personal injuries that the plaintiff's ankle was broken at the joint in two places, and, as a result of the injuries received by her, her nervous system was shocked, and other great, serious and permanent injuries were thereby sustained. The defendant petitioned the court to appoint some disinterested, competent and reputable physician to make an examination of the plaintiff and report to the court the result of such examination. The court appointed a physician as a special medical examiner for the court to make a physical examination of the plaintiff and to report the result in writing and, on proper summons, to submit himself as a witness at the trial.

In a second petition the defendant stated that the physician had requested that the plaintiff be sent to his office as in all probability it might be necessary to take a roentgenogram. Counsel for the plaintiff said that he was not willing that she should be put to the trouble of going to the office of a physician who was appointed at the suggestion of the defendant's attorney. In the answer filed in response to the court's order it was stated that the convenience of the examining physician was not more to be considered than was the convenience of the plaintiff to be examined; that the physician in question was not skilled in the taking of roentgenograms, and that the plaintiff was not willing to subject herself to

the taking of a roentgenogram by one not skilled therein. It was also averred that the plaintiff was a mature woman, still nervous from the injury she received, and nervous and apprehensive at being compelled to go to the office of a strange physician at such time as he should select and submit herself to any examination that might be made therein, although willing, since the original order of the court, to afford the physician every facility in making the examination at her own home at such time as would suit the convenience of the physician. The court thereafter made a new order requiring the plaintiff to submit to a physical examination at the office of the physician, with the right on his part, if he deemed it necessary, to have a roentgenogram or roentgenograms taken by a named roentgenologist. It was further ordered that the plaintiff might, if she so desired, be accompanied to the office of the physician by her husband and her family physician, who would have a right to be present when the examination was made. The fees of the examining physician and the roentgenologist should be paid by the defendant. This order directed the plaintiff to go to the physician's office for examination within a time named, and, if she failed to do so, a judgment of non pros., or for failure to prosecute her suit, would be entered against her.

The court of appeals, finding no error in the action of the court in passing the order, affirms it. It may have been that the character of the injuries was disclosed to the defendant by the nurse who saw and examined the injuries at the time of the accident, but it would seem that the defendant was entitled to know the condition of the injuries four months thereafter, when the petition was filed asking for an examination by a disinterested physician; especially in view of the allegation that such injuries were permanent. But, to say the least, this court is certainly not warranted in holding that, with the facts and circumstances before the court, it abused the discretion lodged in it by ordering the examination of the plaintiff. The same, this court thinks, might be said as to the court's action in directing the plaintiff to go to the office of the physician named in the order for such examination. The order permitted both her husband and her family physician to accompany her to the office of the physician and to be present at the examination, and it would, this court thinks, be going very far to hold that such requirement under the facts and circumstances mentioned was harsh, cruel and oppressive. The very character of the injury, a broken bone, rather suggested a roentgen-ray examination to ascertain the condition of the injuries at that time, and such examination could not well have been made at the home of the plaintiff. This fact necessitated her going to the office of the physician, where the roentgen-ray machine was located.

New Hampshire Decision Relative to Vaccination

(Cram, v. School Board of Manchester et al. (N. H.), 136 Atl. R. 263)

The Supreme Court of New Hampshire, in overruling an exception to a ruling sustaining a demurrer to the plaintiff's petition, says that the petition was for mandamus to compel the defendants to admit the plaintiff's unvaccinated child to the public schools of Manchester. The reasons alleged for seeking that relief were:

> That vaccination consists of performing a surgical operation by injecting a poison, the ingredients of which are not known, into the blood of said daughter and that will endanger her health and life, and he will not permit it to be done; that any law that requires his daughter to be vaccinated before she can attend the public schools denies him of liberty, health and happiness that is guaranteed him by the constitution of said state and of the United States.

The plaintiff's allegations presented a question that has been fully considered in other states and by the supreme court of the United States. The uniform conclusion has been that the allegations relate to a legislative question, and that they are immaterial here. The reasons for this conclusion were stated as follows in *Jacobson* v. *Massachusetts*, 197 U. S. 11, 25 S. Ct. 358:

> Those offers in the main seem to have had no purpose except to state the general theory of those of the medical profession who attach little or no value to vaccination as a means of preventing the spread of smallpox, or who think that vaccination causes other diseases of the body. What everybody knows the court must know, and therefore the state court judicially knew, as this court [the supreme court of the United States] knows, that an opposite theory accords with the common belief, and is maintained by high medical authority. We must assume that, when the statute in question was passed, the legislature of Massachusetts was not unaware of these opposing theories, and was compelled, of necessity, to choose between them. It was not compelled to commit a matter involving the public health and safety to the final decision of a court or jury. It is no part of the function of a court or a jury to determine which one of two modes was likely to be the most effective for the protection of the public against disease. That was for the legislative department to determine in the light of all the information it had or could obtain. It could not properly abdicate its function to guard the public health and safety. . . . Whatever may be thought of the expediency of this statute, it cannot be affirmed to be, beyond question, in palpable conflict with the constitution. Nor, in view of the methods employed to stamp out the disease of smallpox, can any one confidently assert that the means prescribed by the state to that end has no real or substantial relation to the protection of the public health and the public safety. Such an assertion would not be consistent with the experience of this and other countries whose authorities have dealt with the disease of smallpox.

Similar language has been used by the state courts. The principle has been stated in this jurisdiction in many cases. The ruling sustaining the defendants' demurrer was correct.

Admissibility of Opinions as to Mental State

(State v. La Bombarde (N. H.), 136 Atl. R. 268)

The Supreme Court of New Hampshire, in overruling the exceptions of the defendant, who was convicted of murder, says that, subject to exception, an expert witness called by the state was permitted to testify that the defendant had sufficient mentality to be responsible for a criminal act. The objection was here put on the ground that the evidence related to "a question for the jury." While this position was once thought to have weight, it was abandoned long ago. The answer was a form of stating the witness' opinion of the defendant's mental state. No exception lies to the ruling admitting such evidence, if there is any basis for a finding that the opinion would aid the jury. No claim of lack of such basis was made here.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Detroit, September 12-16. Dr. W. P. Wherry, Bankers Reserve Life Building, Omaha, Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Asheville, N. C., September 15-17. Dr. J. E. Davis, 111 Josephine Avenue, Detroit, Secretary.

American Electrotherapeutic Association, New York, September 12-16. Dr. Richard Kovacs, 223 East Sixty-Eighth Street, New York, Secretary.

American Hospital Association, Minneapolis, Oct. 10-14. Dr. William H. Walsh, 18 East Division Street, Chicago, Executive Secretary.

American Public Health Association, Cincinnati, Oct. 17-20. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

American Roentgen Ray Society, Montreal, Canada, September 20-23. Dr. C. L. Martin, Baylor Hospital, Dallas, Texas, Secretary.

Association of Military Surgeons of the United States, Carlisle Barracks, Pennsylvania, October 6-8. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Central States Pediatric Society, Cleveland, Oct. 14-15. Dr. H. T. Prior, Westinghouse Building, Pittsburgh, Secretary.

Colorado State Medical Society, Glenwood Springs, September 6-8. Dr. F. B. Stephenson, Metropolitan Building, Denver, Secretary.

Delaware State Medical Society, Farnhurst, Oct. 11-12. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Idaho State Medical Association, Twin Falls, August 29-31. Dr. J. N. Davis, Kimberly, Secretary.

Indiana State Medical Association, Indianapolis, September 28-30. Mr. T. A. Hendricks, Hume-Mansur Building, Indianapolis, Executive Secretary.

Kentucky State Medical Association, Owensboro, October 3-6. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Missouri Valley, Medical Society of the, Des Moines, Iowa, September 14-16. Dr. Charles Wood Fassett, 115 East Thirty-First Street, Kansas City, Mo., Secretary.

New York and New England Association of Railway Surgeons, New York, Oct. 21-22. Dr. Horace H. LeSeur, 41 Jackson Street, Batavia, N. Y., Secretary.

Oregon State Medical Society, Salem, September 1-3. Dr. F. D. Stricker, Medical Arts Building, Portland, Secretary.

Vermont State Medical Society, Middlebury, Oct. 13-14. Dr. W. G. Ricker, 29 Main Street, St. Johnsbury, Secretary.

Virginia, Medical Society of, Petersburg, Oct. 18-20. Miss Agnes V. Edwards, 104½ West Grace St., Richmond, Secretary.

Washington State Medical Association, Tacoma, August 29-31. Dr. C. H. Thomson, 508 Cobb Building, Seattle, Secretary.

Wisconsin, State Medical Society of, Eau Claire, September 21-23. Mr. J. G. Crownhart, 153 Oneida Street, Milwaukee, Executive Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American J. Med. Sciences, Philadelphia

173: 753-904 (June) 1927

Value of Roentgen Ray in Diagnosis of Pulmonary and Pleural Diseases. C. R. Austrian, Baltimore.—p. 753.
*Sickle Cell Anemia. G. E. Hein, R. L. McCalla and G. W. Thorne, San Francisco.—p. 763.
*Cancer of Stomach. D. C. Balfour and E. H. Hargis, Rochester, Minn. —p. 773.
*Migraine: Treatment with Peptone: Familial Relation to Sensitization Diseases. F. E. Ball, Chicago.—p. 781.
Auricular Fibrillation Associated with Hyperthyroidism: Analysis of 120 Cases. J. P. Anderson, Cleveland.—p. 788.
*Agranulocytic Angina. G. J. Kastlin, Toronto.—p. 799.
*Treatment of Chronic Constipation. M. S. Shaine, New York.—p. 814.
Influenza: Pulmonary Complications. A. M. Burgess, Providence, R. I. —p. 818.
*Polymorphonuclear Leukocyte in Tuberculous Blood. E. M. Medlar and G. J. Kastlin, Madison, Wis.—p. 824.
Systolic Hypertension: Relationship to Atherosclerosis of Aorta and Larger Arteries. M. H. Fineberg, New York.—p. 835.
*Salt-Free Diet in Treatment of Preeclamptic Toxemia. P. B. Bland and M. Bernstein, Philadelphia.—p. 844.
*Ill Effects from Lumbar Puncture: Postpuncture Fatality. L. M. Wieder, Ann Arbor, Mich.—p. 854.

Sickle Cell Anemia.—In the case reported by Hein et al., death resulted from duodenal ulcer. Extreme splenic atrophy and general signs of increased hemolysis were prominent postmortem features.

Cancer of Stomach.—One thousand cases of cancer of the stomach are reviewed by Balfour and Hargis. The value of the roentgen ray in diagnosis is stressed. The types of resection are discussed, and preference is given to gastrojejunal anastomosis, which should be carried out in the anterior position when the gastric stump is small. The latter operation should be combined with jejunojejunostomy. The end-results in the series of 1,000 cases are discussed. When the lymph nodes were not involved, 52 per cent of the patients were alive at the end of three years; otherwise only 19 per cent of them survived that long.

Peptone Treatment of Migraine.—Twenty consecutive cases of migraine treated with 5 per cent peptone are reported by Ball. Ten (50 per cent) were failures; seven (35 per cent) were markedly improved, and three (15 per cent) were improved. One thousand unselected family histories are summarized with reference to the occurrence and association in them of migraine, asthma, hay-fever, urticaria, epilepsy and eczema.

Agranulocytic Angina.—Two cases of agranulocytic angina are reported by Kastlin, and forty-three cases are reviewed. Differential diagnosis in agranulocytic angina presents points similar to the reaction to specific poisons, lymphocytic leukemia, alymphatic leukemia and cases of sepsis with leukopenia. It does not fall within the classification of these conditions, but with the evidence at hand it cannot be called a clinical entity.

Treatment of Chronic Constipation.—Shaine advocates treating chronic spastic constipation by dilation of the lower intestinal tract with a sigmoidoscope and rectal tube. In more than 100 cases it has proved successful in all except two or three, in which it was impossible to introduce the sigmoidoscope the necessary distance. This treatment is advocated only in cases in which treatment by diet, by mineral oil and by oil injections has proved ineffective.

Polymorphonuclear Leukocyte in Tuberculous Blood.—The clinical blood picture in tuberculosis, according to Medlar and Kastlin, substantiates the important rôle played by the polymorphonuclear leukocyte in the process of caseation. An impression is gained that an increase of neutrophils in tuberculosis is an indication of a progressive caseating lesion, and hence a bad prognostic sign.

Salt-Free Diet in Preeclamptic Toxemia.—The employment of salt-free diet in the treatment of preeclampsia is urged by Bland and Bernstein. The results obtained in the treatment of the thirteen cases recorded seem to indicate that this method is superior to other measures that have been employed heretofore.

Ill Effects from Lumbar Puncture.—The case described by Wieder is one presenting evidence of enormous postpuncture leakage of the spinal fluid. The question of the relation of this leakage to the death of the patient is complicated by the evidence of syphilitic involvement of the central nervous system and by the thymicolymphatic constitution.

American Journal of Surgery, New York

2: 527-644 (June) 1927

Treatment of Deep Infections of Submaxillary Triangle. R. Colp, New York.—p. 527.
Fascial Strip Transplants in Treatment of Hernia. A. McGlannan, Baltimore.—p. 532.
Endometrioma of Abdominal Wall. U. Maes, New Orleans.—p. 539.
Radiation for Menorrhagia and Metrorrhagia Caused by Fibromyoma. F. W. Johnson, Boston.—p. 546.
Medical Treatment of Goiter, and Thermogenic System. C. E. de M. Sajous, Philadelphia.—p. 548.
Malignancy of Thyroid. N. W. Gillette, Toledo, Ohio.—p. 556.
Management of Goiter and Some Complications. F. B. Dorsey, Jr., Keokuk, Iowa.—p. 558.
Gastric and Duodenal Ulcer. T. L. Lauderdale, Ranger, Texas.—p. 563.
Advantages of Early Operation in Surgery of Biliary Tract. R. M. Carter, Green Bay, Wis.—p. 567.
Advantages of Left "Stance" in Appendectomy. J. E. Loveland, Middletown, Conn.—p. 572.
*Dangers of Aluminum Acetate Solution as Wet Dressing. A. E. Hertzler, Halstead, Kan.—p. 573.
Surgical Diathermy of Hemorrhoids. W. Bierman, New York.—p. 575
Treatment of Hemorrhoids by Dilatation and Injection. C. J. Drueck, Chicago.—p. 579.
Perforation Peritonitis with Large Encysted Gallstone in Right Nephric Space: Case. N. Blaustein, New York.—p. 585.
Erysipelas Following Bacillus Pyocyaneus Infection in Mastoid Wounds. S. J. Kopetzky and R. Almour, New York.—p. 589.
Angioneurofibroma of Occipital Nerve. W. M. Craig, Rochester, Minn. —p. 593.
Plaster Table for Applying Casts with Patient Recumbent. W. H. Robinson, Pittsburgh.—p. 595.
Adjustable Traction Splint. H. Milch, New York.—p. 598.

Danger of Aluminum Acetate in Wet Dressing.—In a finger in which the infection extended only to the subcutaneous tissue, Hertzler says that a solution of aluminum acetate, 30 grains (2 Gm.) to a pint of water, was applied. He saw the patient a week later. At that time the skin on the dorsal surface, particularly over the knuckles, was badly macerated. The distal portion of the index finger was black as far as the base of the second phalanx. Amputation was done at the metacarpophalangeal joint. Microscopic examination of the amputated finger showed an endarteritis and a complete thrombosis of the veins. Hertzler cautions against too prolonged use of aluminum acetate, even when it stops far short of producing necrosis. Generally speaking, all will be accomplished in twenty-four hours that can be accomplished with this drug and, when prescribed, a limitation should be placed on its use. The same general rule is applicable to any wet dressing.

Annals of Medical History, New York

9: 111-204 (June) 1927

Stigmas of St. Francis of Assisi. E. B. Krumbhaar, Phialdelphia. —p. 111.
Peter Mere Latham. R. T. Williamson, London.—p. 120.
William Sharpey (1802-1880). J. C. Brougher, Portland, Ore.—p. 124.
Laënnec and Culpeper as Depicted by Kipling. L. J. Bragman, Syracuse, N. Y.—p. 129.
Galen's Studies at Alexandrian School. J. Walsh, Philadelphia.—p. 132.
Evolution of Thought of Aristotle: I. Platonic Socrates and Platonic Aristotle. J. Wright, Pleasantville, N. Y.—p. 144.
Defense Reactions During Black Death, 1348-1349. S. D'Irsay, New Haven, Conn.—p. 169.
Copho's "Anatomia Porci." L. Crummer, Omaha.—p. 180.
Medical Words in Johnson's Dictionary. C. W. Burr, Philadelphia. —p. 183.
Goldoni, Clinical Dramatist. F. Eberson, San Francisco.—p. 190.

Annals of Surgery, Philadelphia

85: 801-970 (June) 1927

*Traumatic Cyanosis. M. S. Rosenblatt, Detroit.—p. 801.
*Application of Principle of Quarantine in Abdominal Surgery. R. C. Coffey, Portland, Ore.—p. 808.
*Abdominal Incisions Treated by "Open Method." G. W. Roberts and K. Roberts, New York.—p. 822.
Surgical Anatomy of Recurrent Laryngeal Nerve: Thyroid Surgery. C. C. Higgins, Cleveland.—p. 827.
*Cervical Rib: Anterior Approach for Relief of Symptoms by Division of Scalenus Anticus. A. W. Adson and J. R. Coffey, Rochester, Minn.—p. 839.
*Brachial Plexus Pressure by Normal First Rib. W. M. Brickner, New York.—p. 858.
Primary Ulcer of Jejunum. I. S. Ravdin, Philadelphia.—p. 873.
*Peptic Ulcer: IV. Patch Transplants of Jejunum in Stomach. C. B. Morton, Rochester, Minn.—p. 879. C'td.
Mesenteric Cysts. W. B. Swartley, Philadelphia.—p 886.
Tumors of Tendon Sheaths. A. Janik, Lwów, Poland.—p. 897.
*Metacarpal Central Giant Cell Tumor. E. Duskes, Baltimore.—p. 912.

Traumatic Cyanosis.—A case of traumatic asphyxia with recovery is reported by Rosenblatt. The patient had been compressed between a steam shovel and a stone wall. Complete rest and strapping the chest was the treatment adopted.

Abdominal Drainage.—Coffey describes his use of a drain that resembles the Mikulicz drain used twenty-five or thirty years ago. It consists of twelve gauze wicks enclosed in rubber tissue.

Abdominal Incisions Treated by Open Method.—The Robertses analyze 112 abdominal operations in support of their contention that wounds treated by the "open" method yield an exceptionally high healing average. They also present a record sheet designed especially for data on operative wounds and their healing.

Cervical Rib.—In about 55 per cent of the cases reviewed by Adson and Coffey, the cervical ribs were symptomless. The anterior approach and tenotomy of the scalenus anticus muscle are preferred by them to the transcervical approach and resection of the cervical rib, since the same relief is offered, the procedure is less formidable and postoperative numbness in the arm and palsy of the brachial plexus are avoided.

Normal First Rib Causes Pressure on Brachial Plexus.—Two cases are reported by Brickner of intermittent severe pain and edema in one upper extremity occurring in adolescent girls, and perhaps due to plexus pressure by the first rib.

Jejunal Transplants in Stomach Wall.—Twenty-one experiments on dogs are described by Morton in which patches of jejunum with intact mesenteric circulation were transplanted into the wall of the stomach at various points and observed for periods as long as 419 days. All patches remained in normal condition except one. In this case a chronic peptic ulcer developed in a patch in the lesser curvature of the stomach. Thirteen experiments are described in which patches that had remained normal for long periods up to 419 days were subjected to the acid-alkali imbalance in the stomach resulting from surgical duodenal drainage. Patches were in various regions of the stomach. Except for a superficial erosion which developed in a patch in the anterior wall of the stomach, ulcers developed only in patches in the lesser curvature. Typical chronic ulcers developed in three of five patches in this situation. The acid-alkali imbalance in the stomach and adjacent intestine, resulting from surgical duodenal drainage and the relatively exposed position of the lesser curvature in relation to trauma in the emptying process in the stomach, are suggested as being important factors in explaining the presence and site of the ulcers found in the experiments.

Metacarpal Central Giant Cell Tumor.—A case of central giant cell tumor of the third metacarpal bone of the left hand in a girl, aged 17 years, is reported by Duskes.

Archives of Internal Medicine, Chicago

39: 751-892 (June) 1927

*Acromegaly: VI. Disturbance of Carbohydrate Metabolism. L. M. Davidoff and H. Cushing, Boston.—p. 751.
*Influence of Menstruation on Blood Calcium. H. Sharlit, J. A. Corscaden and W. G. Lyle, New York.—p. 780.
*Protein Test for Urea Formation Function of Liver. P. Cohen, New York, and S. J. Levin, Ann Arbor, Mich.—p. 787.
*Diameter of Red Blood Cells in Health and in Anemia. A. R. McCormick, Pittsburgh.—p. 799.
*Cerebrospinal Fluid in Nephritis. J. D. Lyttle and L. Rosenberg, New York.—p. 808.
Toxic Action of Cystine on Kidney. A. C. Curtis and L. H. Newburgh, Ann Arbor, Mich.—p. 817.
Toxic Action of Cystine on Liver of Albino Rat. A. C. Curtis and L. H. Newburgh, Ann Arbor, Mich.—p. 828.
*War Gases and Tuberculosis. A. R. Koontz, Edgewood, Md.—p. 833.
Periarteritis Nodosa with Special Reference to Acute Abdominal Manifestation: Two Cases. H. A. Singer, Chicago.—p. 865.

Acromegaly a Disturbance of Carbohydrate Metabolism.—Davidoff and Cushing agree with others that acromegaly represents a state of hyperpituitarism which is ascribable to the overaction of the acidophilic cells of the pars anterior. There are ample reasons to support the belief that the meliturias which occur in about 25 per cent of all cases of acromegaly may be similarly accounted for as primarily hypophysial, even though the pancreatic islets doubtless play a secondary rôle in their production.

Influence of Menstruation on Blood Calcium.—The data presented by Sharlit et al. show that there is a rise in the concentration of calcium in the blood at the approach and onset of menstruation.

Protein Test of Liver Function.—A new test for liver function is described by Cohen and Levin, based on the normal conversion by the liver of amino-acids to urea. After a protein meal of 1 Gm. per kilogram of weight, the blood urea will increase as the blood sugar does after a dextrose meal. Normally, the blood urea will increase at least from 50 to 70 per cent above the fasting level in four hours. In cases of liver injury, this increase of the blood urea after a protein meal is much diminished, usually below 50 per cent, and sometimes an increase does not result in four hours. Other tests for liver function have corroborated this test of subnormal hepatic function. When the liver again becomes normal, the protein test also causes a normal increase in blood urea.

Measuring Red Blood Cell Diameter.—McCormick dilutes the fresh blood with Hayem's solution, as in making a count of the red blood cells. The cells are thus measured in a moist preparation with a Bausch and Lomb filar ocular micrometer.

Cerebrospinal Fluid in Nephritis.—The cerebrospinal fluid in twenty-two cases of nephritis has been studied by Lyttle and Rosenberg. In the absence of uremic manifestations, the cerebrospinal fluid was found to be essentially normal in all respects. In the presence of uremic symptoms, the protein content rises.

War Gases and Tuberculosis.—Koontz's experiments demonstrate clearly that rabbits gassed with phosgene, mustard and lewisite are not more susceptible to tuberculosis than are control animals inoculated at the same time with the same dose of bacilli. The gassing of animals that already have well developed tuberculosis does not appreciably accelerate the tuberculous process. The sum total of the amount of tuberculosis in all the experiments was slightly less in the gassed animals than in the controls.

Archives of Neurology and Psychiatry, Chicago

17: 723-870 (June) 1927

*Brain of Prehistoric Man. F. Tilney, New York.—p. 723.
*Pathogenesis of Cerebral Hemorrhage. Aneurysm of Posterior Communicating Artery. G. B. Hassin, Chicago.—p. 770.
Form of Anterior Horn Cells of Vertebrates. A. Weil, New York.—p. 783.
*Acute Polyneuritis with Facial Diplegia. H. R. Viets, Boston.—p. 794.
Intravenous Use of Mercuric Cyanide in Terminal General Paralysis. H. K. Petry, Warren, Pa.—p. 804.
Technic for Obtaining Blood from Internal Jugular Vein and Internal Carotid Artery. A. Myerson, R. D. Halloran and H. L. Hirsch, Boston.—p. 807.

Brain of Prehistoric Man.—Tilney asserts that the brain of prehistoric man is of more than antiquarian interest. It has a positive bearing on the future progress of the race.

Pathogenesis of Cerebral Hemorrhage.—In the case cited by Hassin, an aneurysm of a large artery at the base of the brain was associated with vascular changes in the basal

ganglions. A hemorrhage from the ruptured aneurysm was followed by numerous blood extravasations in the ipsolateral basal ganglions. The cause of the hemorrhages in both instances was increased intracranial blood pressure and vascular changes. As the result of the latter, the aneurysm ruptured first, causing a local fall in the arterial blood pressure; this in its turn caused a rise in the blood pressure in the corresponding veins and their rupture. The hemorrhages from the veins were thus secondary and agonal; therefore, they were not accompanied by reactive phenomena. Miliary aneurysms are said not to be essential in the genesis of cerebral hemorrhages.

Acute Polyneuritis with Facial Diplegia.—The two cases cited by Viets of acute infective polyneuritis with facial diplegia, one mild and the other fatal, conform to cases previously reported in the literature as acute febrile or acute toxic polyneuritis. Clinically, the disease is characterized by the following features: the onset is usually acute, with fever; motor paralysis of the extremities appears early and is seldom complete, and the proximal part of the limbs is more involved than the distal portion; sensory symptoms are mild and pass away quickly; the sphincters are often involved; the facial nerves are always involved, usually equally and in all branches; the other cranial nerves are rarely affected, and the deep reflexes are invariably lost. The disease may be fatal, but recovery takes place in the great majority of instances; complete restoration of function in nonfatal cases is to be expected within one or two years, although slight facial weakness, especially of the lower branches, may be permanent. Facial diplegia is the most characteristic sign of this disease. It is rarely complete, but there is practically always inability to close the eyes. The spinal fluid is altered, at least in fatal cases. The total protein content may be increased to ten or more times normal, without other changes in the fluid. Pathologic examination discloses marked secondary changes (chromatolysis) in the anterior horn cells of the spinal cord and in the facial nerve nuclei. In the one patient examined, no meningitis, encephalitis or perivascular infiltration was found. The disease affects the whole lower motor neuron, and should more properly be referred to as polyneuronitis.

Archives of Otolaryngology, Chicago

5: 469-556 (June) 1927

Neurologic Complications of Ear, Nose and Throat. T. H. Weisenburg, Philadelphia.—p. 469.
Relation of Oral Articulative Movements of Speech and of Extrinsic Laryngeal Musculature in General to Function of Vocal Cord. E. L. Kenyon, Chicago.—p. 481.
*Simultaneous Occurrence of Multiple Lesions in Esophagus. P. P. Vinson, Rochester, Minn.—p. 502.
Distinguishing Between Tactile Sense and Audition in Deaf Child. D. MacFarlan, Philadelphia.—p. 507.
*Ephedrine and Cocaine Synergy. E. L. Ross, Waukegan, Ill.—p. 509.
New Antrum Needle. L. E. Daugherty, Cumberland, Md.—p. 514.
Chronic Progressive Deafness. J. K. M. Dickie, Ottawa.—p. 515.

Multiple Lesions in Esophagus.—In examination of the esophagus, the possibility of two or more independent lesions existing at the same time should always be borne in mind. Vinson reports three cases: Pharyngo-esophageal diverticulum complicated by epithelioma; pharyngo-esophageal diverticulum and tumor in the lower part of the mediastinum on the right side, and carcinoma of the upper part of the esophagus with diverticulum of the lower part of the esophagus.

Ephedrine and Cocaine Synergy.—Ross found that ephedrine and cocaine do not act synergistically on the blood pressure like epinephrine and cocaine. Ephedrine does not increase, but decreases the toxicity of cocaine.

Archives of Surgery, Chicago

14: 1125-1284 (June) 1927

*Hallus Valgus. M. Cleveland, New York.—p. 1125.
*Chronic Subdural Hematoma. C. W. Rand, Los Angeles.—p. 1136.
*Actinomycosis of Vertebrae. W. M. Simpson, Baltimore, and C. A. McIntosh, Montreal.—p. 1166.
Sarcoma Complicating Paget's Disease of Bone: Nine Cases. C. E. Bird, Boston.—p. 1187.
*Prevention of Regeneration of Ribs. J. R. Head, Chicago.—p. 1209.
Effects of Gaseous Distention on Obstructed Bowel: Incarceration of Intestine by Gas Traps. W. D. Gatch, H. M. Trusler and K. D. Ayers, Indianapolis.—p. 1215.
Relation of Nitrogen Bodies of Blood to Surgical Problems in Liver and Biliary Tract Disease: II A. O. Wilensky, New York.—p. 1222.
Sarcoma of Omentum. A. L. McDonald, Duluth, Minn.—p. 1245.
Natural History of Renal Infections. H. Cabot, Ann Arbor, Mich.—p. 1259.
Pelvic Abscess in Male. S. Kleinberg, New York.—p. 1267.
Thirty-Second Report of Progress in Orthopedic Surgery. P. D. Wilson et al.—p. 1271.

Hallux Valgus.—In the 200 cases analyzed by Cleveland, the most satisfactory operation for correction of hallux valgus was resection of the metatarsal head, together with removal of exostosis. In selected cases with only moderate hallux valgus, and in which the patients complained of a painful exostosis and inflamed bursa as the chief source of annoyance, wide excision of the exostoses alone gave satisfactory results.

Chronic Subdural Hematoma.—The seven cases of chronic subdural hematoma reported by Rand have shown a decidedly high pitched percussion note over the calvarium. In one instance, an internal hydrocephalus was so strongly suspected because of this sign that lumbar puncture was deferred. The note does not appear to be higher on the side of the hematoma. The importance of investigating the possible history of preceding trauma in all cases of obscure increasing intracranial pressure is emphasized.

Actinomycosis of Vertebrae.—Four cases of actinomycosis of the vertebrae are reported by Simpson and McIntosh. In two of their cases, the primary infection was in the lungs; in the other two, the primary focus was apparently in the appendiceal region. The spread of the actinomycotic process to the vertebrae was due to direct extension by means of dissecting sinus tracts and abscesses. The characteristic lesion is cortical erosion of the vertebrae with vertebral phlegmon.

Prevention of Regeneration of Ribs.—Head says that cauterization with concentrated solution of chromic acid and with Zenker's solution prevents regeneration of bone and does not perforate the pleura. The results with Zenker's solution were the most satisfactory.

Arkansas Medical Society Journal, Little Rock

24: 1-24 (June) 1927

Bone Tumors: Diagnosis and Treatment. B. Brooks, Nashville, Tenn.—p. 1.
High Fat, Rich Vitamin Diet in Ulcers of Stomach and Duodenum. S. Harris, Birmingham, Ala.—p. 3.

Atlantic Med. Journal Harrisburg, Pa.

30: 481-546 (May) 1927

Focal Infection in Children. A. G. Mitchell, Cincinnati.—p. 481.
Case of Multiple Personality. C. C. Wholey, Pittsburgh.—p. 488.
Hysteria. G. W. Smeltz, Pittsburgh.—p. 492.
Relation of Bacteriology to Clinical Medicine: Regional Bacteriologic Flora. DeW. G. Richey, Pittsburgh.—p. 494.
Clinical Value of Blood Cultures. W. R. Marshall, Pittsburgh.—p. 497.
*Incidence of Pneumococcus Types in Pneumonia in Pittsburgh. J. W. McMeans, Pittsburgh.—p. 499.
Ear, Nose and Throat Findings in 9,751 Examinations of College Freshmen. P. S. Stout, Philadelphia.—p. 503.
Practical Method of Periodic Health Examination. F. A. Faught, Philadelphia.—p. 506.

Incidence of Pneumococcus Types in Pittsburgh.—Pneumococcus type IV is chiefly concerned in the morbidity of pneumococcus infections in Pittsburgh. Of 2,524 sputum examinations reported on by McMeans, 388 were type I; 380 were type II; 349 were type III and 1,407 were type IV.

Canadian Med. Assoc. Journal, Montreal

17: 637-766 (June) 1927

*Circulatory Failure: in Hemorrhage and Shock. E. M. Eberts, Montreal.—p. 637.
Id.: In Acute Infectious Diseases. D. G. Campbell, Montreal.—p. 639.
Id.: In Acute and Chronic Cardiac Diseases. C. F. Moffatt, Montreal.—p. 643.
Id.: In Chronic Intoxications and Vascular Disturbances. J. C. Meakins, Montreal.—p. 647.
Relation of Basic Medical Sciences to Surgery. W. J. Mayo, Rochester Minn.—p. 652.

Conference on Lister. E. S. Jacques, Montreal.—p. 658.
Asthma. H. K. Detweiler, Toronto.—p. 661.
*Value of Ultraviolet Ray Therapy in Childhood. F. F. Tisdall, Toronto. —p. 667.
*Pernicious Anemia: III. Chloride Content of Corpuscles and Plasma. A. T. Cameron and M. E. Foster, Winnipeg, Man.—p. 228.
Chronic Hydrocephalus Apparently Arrested. C. K. Fuller, Toronto. —p. 675.
*Ulcer of Stomach and Duodenum. R. Lynch, Montreal.—p. 677.
Complete Heart Block, Eventual Recovery of Normal Rhythm: In Association with Fibromyoma of Stomach. C. A. McIntosh, Montreal. —p. 681.
*Insulin Edema. I. M. Rabinowitch, Montreal.—p. 685.
Intratracheal Use of Nitrous Oxide and Oxygen Anesthesia. R. Hargrave, Toronto.—p. 688.
Hemorrhage Following Removal of Tonsils and Adenoids. W. J. McNally, London.—p. 690.
*Dermatitis Venenata in Rubber Tire Industry. D. E. H. Cleveland, Vancouver, B. C.—p. 695.
Hereditary Abnormalities of Eye: IV. Inheritable Diseases Affecting Conjunctiva. M. T. Macklin, London, Ont.—p. 697.
Chrondroma of Larynx. H. S. Birkett and K. Hutchison, Montreal. —p. 703.
Puerperal Fever or Scarlet Fever? Unusual Case Treated with Antitoxin. H. R. Clouston, Huntingdon, Que.—p. 705.
Operation for Herniotomy Under Difficulties. H. Ross, Clifford, Ont. —p. 707.
Treatment of Anemia. E. S. Mills, Montreal.—p. 709.
Migraine. W. F. Hamilton, Montreal.—p. 710.
Recent Advances in Knowledge of Coronary Circulation. H. N. Segall, Montreal.—p. 711.

Circulatory Failure in Hemorrhage and Shock.—Eberts is convinced that the clinical methods now practiced for the relief of hemorrhage adhere closely to the physiologic requirements of the circulatory apparatus as determined by physiologic experiment.

Ultraviolet Ray Therapy in Rickets and Tetany.—Tisdall regards ultraviolet ray therapy by means of the ordinary air cooled mercury vapor quartz lamp as being absolutely specific in the treatment of rickets and tetany. Definitely beneficial results are obtained in the treatment of abdominal, mediastinal and glandular tuberculosis. The results are questionable with bone, joint and pulmonary tuberculosis. Chronic nontuberculous cervical adenitis responds well to ultraviolet therapy.

Plasma and Corpuscle Chloride Content in Pernicious Anemia.—Cameron and Foster found that plasma chloride contents in the anemias are constant. Cell chloride contents in pernicious anemia (active and remission stages) are low. Cell chloride contents in the majority of cases of secondary anemia tend to be above normal. Plasma and cell chloride contents are both lowered in diabetes mellitus and in other conditions in which an increase of blood constituents requires osmotic compensation, and in acute intestinal obstruction. The lowered cell chloride content in pernicious anemia is probably due to an osmotic adjustment to an increased cell-hemoglobin content.

Ulcer of Stomach and Duodenum.—Lynch analyzes the records of 944 cases of gastric and duodenal ulcer. The result of the study of the medical treatment indicates that 62.5 per cent of gastric and 79.5 per cent of duodenal ulcers respond to the Lenhartz or Sippy management.

Insulin Edema.—Insulin produces an edema of the body tissues of the diabetic person, and this largely accounts, in a great number of cases, for the rapid increases of body weight frequently noted. The recognition of this phenomenon is important in order to estimate properly the progress in a case of severe diabetes. Rabinowitch says that the proof that the rapid gains of body weight are due largely to water retention is the fact that, as the insulin is discontinued, polyuria occurs, and approximately parallels the loss of body weight. The losses in his cases have been found to vary between 3 and 12 pounds (1.5 and 5.4 Kg.) during a period of three days. Though hyperglycemia gradually increases during the first few days after the insulin is discontinued, glycosuria may frequently be absent. The polyuria thus differs from that of active diabetes. Obviously, if the insulin is discontinued for a certain period, the diabetes becomes active, and glycosuria reappears. Following institution of insulin treatment, without alteration of food or fluid intake, the polyuria disappears, and the patients again begin to gain weight. Two cases are cited as typical of this phenomenon.

Dermatitis Venenata in Rubber Tire Industry.—Hexanitrodiphenylamine was responsible for the poisoning in Cleveland's case. Hexanitrodiphenylamine (known colloquially in the factory as "hex") is a powder, readily conveyed through the air, which produces its effects on the face and on the parts covered by dusty sweat-soaked clothing.

Indiana State Med. Assoc. Journal, Ft. Wayne

20: 207-246 (June) 1927

Rupture of Solid Abdominal Viscera. W. E. Gabe, Indianapolis. —p. 207.
Estimation of Bilirubin in Blood as Index of Liver Function. B. W. Rhamy, Fort Wayne.—p. 212.
Light and Life. E. N. Kime, Indianapolis.—p. 215.
Diseases of Thyroid. A. S. Jackson, Madison, Wis.—p. 218.
Abdominal Pain: Analysis of 1,000 Cases. L. W. Elston, Fort Wayne. —p. 221.

Iowa State Med. Society Journal, Des Moines

17: 113-148 (April) 1927

Problems of Deaf. M. A. Goldstein, St. Louis.—p. 126.
How May Wife Be of Assistance to Country Doctor. G. T. McDowall, Gladbrook.—p. 130.
Differential Diagnosis of Acute Pyelitis and Acute Appendicitis. H. W. Scott, Emmetsburg.—p. 132.
Infectious Jaundice. J. W. Wallace, Des Moines.—p. 135.

17: 149-182 (May) 1927

Tumors of Breast. J. N. Jackson, Kansas City, Mo.—p. 149.
Treatment of Advanced Cardiac Failure. F. M. Smith, Iowa City.—p. 151.
Toxic Goiter. C. B. Luginbuhl, Des Moines.—p. 154.

Johns Hopkins Hospital Bulletin, Baltimore

40: 337-433 (June) 1927

*Nervous Complications of Variola, Vaccinia and Varicella. R. E. Wilson and F. R. Ford, Baltimore.—p. 337.
Tumors of Glioma Group. P. Bailey, Boston.—p. 354.
Development and Microscopic Structure of Normal Human Gallbladder. B. Halpert, Baltimore.—p. 390.
*Predisease Diets of Patients with Pernicious Anemia. B. S. Cornell, Montreal.—p. 409.

Encephalomyelitis as Complication of Exanthems.—Cases reported by Wilson and Ford show that a diffuse nonsuppurative encephalomyelitis may occur as a rare but specific complication of variola, vaccinia and varicella. The clinical picture points chiefly to the spinal cord, but signs of involvement of the brain stem and even of the basal ganglions are found. In such cases the nervous symptoms develop after a fairly definite interval following the onset of the disease. The vaccine virus has been demonstrated in the nervous tissues in cases of vaccinia encephalomeylitis, but this proof is still lacking in the encephalomyelitis which follows variola and varicella. In all three conditions the tendency is for a more or less complete recovery. The relatively large number of cases of vaccinia encephalomyelitis which have been observed since attention has been directed to the subject suggests that the condition is less uncommon than has been believed. Many such cases have been mistaken for tetanus.

Predisease Diets of Patients with Pernicious Anemia.—A detailed study of the predisease diets consumed by twenty-six patients with pernicious anemia over a period, especially, of ten years before becoming ill was made by Cornell. On the whole, these patients consumed fairly average diets. Their diets in most cases were the same as those of their nearest associates, who did not develop pernicious anemia. It is probable, therefore, that pernicious anemia is not due, fundamentally, either to an excess or a deficiency of any type of food. It is not impossible, however, that high fat intake may cooperate with constitutional changes in the gastro-intestinal tract to play a partial rôle in the etiology.

Journal Lab. & Clin. Med., St. Louis

12: 837-936 (June) 1927

*Early Infantile Progressive Muscular Atrophy (Werdnig-Hoffmann). C. E. Nixon and J. Oliver, San Francisco.—p. 837.
*Organic Phosphorus of Cerebrospinal Fluid. G. E. Youngburg, Buffalo. —p. 845.
Toxic Filtrates of Anhemolytic Streptococci, Recovered from Rheumatic Fever. E. Steinfield and M. S. Jacobs, Philadelphia.—p. 850.
*Endothelioid Cells in Acute Leukemia. R. B. Barton, Boston.—p. 855.
*Diagnostic Value of Sugar Content in Cerebrospinal Fluid. A. S. Giordano, South Bend, Ind.—p. 858.
Three Phases of Wassermann Technic. M. H. Swan, Chicago.—p. 865.
*Metastasis to Thyroid from Endothelial Myeloma of Bone: Roentgen-Ray Treatment. L. F. Craver, New York.—p. 878.
Glycol: Glycol-Chloretone Anesthesia. H. B. Haag and W. R. Bond, Richmond, Va.—p. 882.
Basal Metabolism: IX. Simplified Calculation for Gasometer Gas Analysis Method. W. H. Stoner, Philadelphia.—p. 884.

Standard Method of Recording Hemoglobin Content of Blood. C. A. Elvenjem and J. Waddell, Madison, Wis.—p. 889.
Flocculation Tests in Serology of Syphilis. E. Meinicke, Grand Rapids, Mich.—p. 891.
*Calculation of Color, Volume and Saturation Index. E. E. Osgood, Portland, Ore.—p. 899.
Estimating Capillary Blood Sugar Modification of Folin-Wu Technic. H. V. Gibson, Madison, Wis.—p. 906.
Methods for Making Stable Emulsified Syphilitic Antigen. F. Proescher, A. Arkush and A. Krueger, Agnew, Calif.—p. 908.
Measurement of Blood for Chemical Examination. S. L. Leiboff, New York.—p. 911.
Portable Thermo-Electric Apparatus for Determination of Surface and Tissue Temperatures. H. C. Bazett and B. McGlone, Philadelphia.—p. 913.
Colorimetric Method for Determination of Iron and Hemoglobin in Blood. M. Dupray, Hutchinson, Kan.—p. 917.

Early Infantile Progressive Muscular Atrophy.—Nixon and Oliver report two cases of early infantile progressive muscular atrophy of the Werdnig-Hoffmann type. One case presented the usual pathologic changes of this disease, consisting of marked atrophy of the anterior horn cells of the spinal cord and moderate chromatolysis of Clarke's column cells without evidence of an inflammatory process; the somatic muscles show extensive atrophic changes. The second case manifested an acute type of change in the anterior horn cells and striking involvement of the heart muscle.

Organic Phosphorus of Cerebrospinal Fluid.—In 200 cerebrospinal fluids analyzed by Youngburg, between 0.06 and 0.59 mg. per cent of phosphorus was found, in the great majority the amount being between 0.1 mg. and 0.3 mg. per cent. This phosphorus is not in the form of lipoids but is in all probability in protein combination.

Endothelial Cell in Acute Leukemia.—Barton asserts that there is both direct and indirect evidence that in the circulating blood under certain unusual conditions a cell is present with distinctly endothelial characteristics intermediate between the endothelial cell of the bone marrow capillaries and the myeloblast of acute leukemias.

Diagnostic Value of Cerebrospinal Fluid Sugar Content.—The data presented by Giordano do not point to anything new. His work corroborates recent studies on the sugar content of the spinal fluid.

Metastasis to Thyroid from Endothelial Myeloma.—The case reported by Craver presented an interesting problem in diagnosis. The patient had an arm amputated for supposed periosteal sarcoma in one hospital, and an operation was done on the thyroid in another hospital for supposed carcinoma of the thyroid. He came to a third hospital with a large mediastinal tumor said to be an extension of the carcinoma of the thyroid. Examination of microscopic sections obtained from both hospitals showed that both tumors were the same —endothelial myelomas. There was rapid regression of the mediastinal mass under roentgen-ray treatment.

Calculation of Color, Volume and Saturation Index.—A table is presented by Osgood which makes it possible to convert the results of red cell counts, hemoglobin estimations and cell volume determinations directly into all the percentage figures that are necessary for the calculation of the color, volume and saturation indexes. The table can also be used to convert the percentage of hemoglobin (when estimated by methods in which 100 per cent indicates a content of 13.8 Gm. per hundred cubic centimeters) into grams of hemoglobin per hundred cubic centimeters of blood, thus enabling clinicians to report their hemoglobin data in grams, as has recently been strongly recommended. In addition, the table shows the average figures and the significant variations for red cell counts, hemoglobin estimations and cell volume determinations.

Journal of Bacteriology, Baltimore

13: 379-444 (June) 1927

Interfacial Tension and Bacterial Growth. N. Davis, Houston, Texas.—p. 381.
Relation of Surface Tension to Bacterial Development. O. R. Pizarro.—p. 387.
Bacteria Prevalent in Sweet Corn Canning. L. H. James, Washington, D. C.—p. 409.
*Can B. Coli Be Used as Index of Proper Pasteurization of Milk? J. C. Swenarton, Baltimore.—p. 419.

Colon Bacillus in Pasteurized Milk.—Sixteen pasteurizing plants were studied by Swenarton with respect to the *B. coli* content of the pasteurized milk. The *B. coli* content of the pasteurized milk from the different plants was found to vary considerably. The control charts from the plants whose milk was high in *B. coli* show improper heating or irregularity of procedure. There is a definite correlation between *B. coli* content and procedure, as indicated by the control charts. A test for *B. coli* in pasteurized milk can be used to good advantage in checking up on plant performance. A standard is proposed for the maximum *B. coli* content of a properly pasteurized milk.

Journal of Infectious Diseases, Chicago

40: 629-718 (June) 1927

*Specific Skin and Testis Reactions with Culture Filtrates of Coccidioides Immitis. E. F. Hirsch and H. Benson, Chicago.—p. 629.
*Specific Substance of Coccidioides Immitis. E. F. Hirsch and D. D'Andrea, Chicago.—p. 634.
*Sensitization of Guinea-Pigs with Broth Culture Filtrates and with Killed Mycelium of Coccidioides Immitis. E. F. Hirsch and D. D'Andrea, Chicago—p. 638.
*Specificness in Precipitin Reaction of Thyroglobulin. L. Hektoen, H. Fox and K. Schulhof, Chicago.—p. 641.
*Preparation and Precipitin Reactions of Egg Albumin and Blood Proteins of Domestic Fowl. L. Hektoen and A. G. Cole, Chicago.—p. 647.
Surface Tension Studies with L. Acidophilus and L. Bulgaricus. N. Kopeloff and P. Beerman, Ward's Island, N. Y.—p. 656.
Incidence of Mastitis and Infecting Organisms in Four Dairy Herds. J. G. Hardenbergh and C. F. Schlotthauer, Rochester, Minn.—p. 667.
*Excretion of Antiseptic Dyes Through Mammary Gland. V. Burke and E. A. Rodier, Washington.—p. 673.
*Bacterial Metabolism: LXXXII. Bacteriology and Chemistry of Adult Duodenal Contents. A. I. Kendall, A. A. Day, A. W. Walker and R. C. Haner, Chicago.—p. 677.
Id.: LXXXIII. Relaxation of Histamine Contractions in Smooth Muscle by Certain Aldehydes. A. I. Kendall, St. Louis.—p. 689.
*Types of Hemolytic Streptococci in Certified Milk. W. D. Frost, M. Gumm and R. C. Thomas, Madison, Wis.—p. 698.
Precipitin Reaction of Fibrinogen. L. Hektoen and W. H. Welker, Chicago.—p. 706.

Specific Skin and Testis Reactions.—The results obtained by Hirsch and Benson indicate that the growth of *Coccidioides immitis* in liquid mediums liberates a soluble specific substance which, in animals infected with *Coccidioides immitis* and in patients with coccidioidal granuloma, causes skin reactions similar to those occurring with tuberculin in tuberculous animals. The immediate skin reaction resembles the wheal produced by the specific pollen extract in a patient with hay-fever. This soluble specific substance is not destroyed by heating to 80 C. for thirty minutes. The reactions with the filtrate of a synthetic medium culture are like those obtained with filtrates of ordinary broth cultures. Prolonged electrodialysis of the synthetic medium filtrate causes the separation of white floccules. These dissolve readily in distilled water containing a few drops of hundredth-normal sodium hydroxide, and the solutions cause skin reactions like those of the original filtrate. Not all of the specific substance is flocculated by electrodialysis. The intratesticular injection of liquid culture filtrates causes a gross reaction in guinea-pigs with coccidioidal granuloma like that in the testes of tuberculous animals after the injection of tuberculin.

Specific Substances of Coccidioides Immitis.—From a synthetic protein-free culture filtrate of *Coccidioides immitis*, a specific substance containing nitrogen and carbohydrate was recovered by Hirsch and D'Andrea which, in high dilution, caused skin reactions in a patient with coccidioidal granuloma. Similar preparations have been recovered from broth culture filtrates.

Sensitization with Coccidioides.—Hirsch and D'Andrea have succeeded in sensitizing guinea-pigs with broth culture filtrates of *Coccidioides immitis* and with the killed, dried mycelium of the mold. In such sensitized animals, immediate and delayed skin reactions are produced by filtrates of the same strain and of other strains of the mold, as well as with solutions of the soluble specific substance obtained from broth culture filtrates. These results are like those obtained by sensitizing guinea-pigs to tuberculin, O. T., with injections of either O. T. or killed tubercle bacilli.

Specificness in Precipitin Reaction of Thyroglobulin.—The results of observations on the range of action of precipitins for thyroglobulins from wild animals that died in captivity, as

well as from domesticated species, are recorded by Hektoen, Fox and Schulhof. They found that mammalian thyroglobulins are more or less closely related in precipitinogenic properties. Whether specific and common antigens occur in mammalian thyroglobulins, prepared according to Oswald's method, remains an open question. Apparently there is no antigenic relationship between the mammalian thyroglobulins that have been studied and the thyroglobulin of the domestic fowl.

Reactions Between Egg White and Blood Proteins.—Hektoen and Cole assert that there is a definite immunologic relationship between the albumins of egg white and of chicken blood, and the albumin of egg white may be resolved into several fractions which differ widely in their reactions with precipitin serum for blood albumin.

Excretion of Dyes Through Mammary Gland.—Experiments made by Burke and Rodier with gentian violet acriflavine and mercurochrome demonstrated that neutral acriflavine is excreted by the mammary gland apparently unaltered, but it is excreted in sufficient amount to increase the bacteriostatic action of the milk.

Studies of Duodenal Contents.—Chemical and bacteriologic studies were made by Kendall et al. of fifty specimens of duodenal contents obtained from a consecutive series of adults. Approximately one half of the specimens failed to yield significant numbers of micro-organisms in artificial culture mediums; the remainder varied from very moderate cultivations, yielding bacteria that were chemically nearly inert except for acid production, to heavy growths, reminiscent of those that would confidently have been anticipated, had the specimens come from the lower levels of the small intestine. No direct evidence of a microbicidal action of the duodenum or its contents was detected, though many specimens failed to show bacteria, even on direct microscopic examination. The relative abundance of members of the *Bacillus mucosus-capsulatus* group, of the enterococcus and of staphylococci in the specimens studied suggests that these organisms are rather easily adaptive to the adult duodenal environment. The occurrence of gas bacilli in three of the duodenal specimens indicates that this organism is to be regarded as a potential resident of the duodenum.

Hemolytic Streptococci in Certified Milk.—The milk from about 1,000 cows on five different certified farms was plated by Frost et al. on blood agar about once a month throughout a period of one and one-half years. Hemolytic streptococci of the true beta type appeared in 28.6 per cent of the samples. The number of such streptococci in the samples were usually very small, less than a thousand per cubic centimeter in 65 per cent, and less than 10,000 per cubic centimeter in 94 per cent of the samples. Classification of 394 cultures of the true beta type, by means of seven different tests, placed them in six different species. Five of these have been described before. One new species is described, *Streptococcus asalignus*. All of the streptococci found in certified milk, and identified, are of the bovine type with the exception of four cultures which proved to be *Streptococcus epidemicus* Davis.

Missouri State Medical Association Journal, St. Louis

24: 179-238 (May) 1927

Carcinoma of Rectum. D. F. Jones, Boston.—p. 179.
Is There Fracture Problem—If So, What Is Solution? N. W. Sharpe, St. Louis.—p. 188.
Sir William Osler. J. E. Jennings, St. Louis.—p. 193.
Posture. A. O'Reilly, St. Louis.—p. 199.
Mastoid Disease. W. D. Black, St. Louis.—p. 206.
Regular Medicine and Public. C. Potter, St. Joseph.—p. 210.

24: 239-274 (June) 1927

Lipodystrophia Progressiva with Ocular Complications. J. W. Charles and H. S. Liggett, St. Louis.—p. 239.
*Paralytic Type of Epidemic Encephalitis. G. W. Robinson, Kansas City.—p. 246.
Glucose in Treatment of Epidemic Encephalitis. L. B. Alford, St. Louis.—p. 249.
*Autotransplantation of Endometrial Tissue in Dogs. C. D. O'Keefe and R. J. Crossen, St. Louis.—p. 252.
Gallbladder and Surgeon. F. Reder, St. Louis.—p. 254.
Agranulocytic Angina. F. R. Finnigan, St. Louis.—p. 258.
*Tuberculosis of Mammary Gland. D. T. Vandel, Kansas City.—p. 260.

Treatment of Epidemic Encephalitis.—In Robinson's opinion the best treatment for epidemic encephalitis is salicylates, and methyenamine and arsenic intravenously. In all cases in which this disease is suspected, he believes that active treatment should be instituted and continued over a considerable period of time.

Autotransplantation of Endometrial Tissue.—Only two of seven experiments reported on by O'Keefe and Crossen were successful. The transplant had been placed in the mesoappendix.

Tuberculosis of Mammary Gland.—The three cases reported by Vandel comprise 1.02 per cent of all breast cases coming to operation during a ten year period.

Tennessee State Med. Assoc. Journal, Nashville

19: 299-328 (March) 1927

Treatment of Certain Fractures. D. Eve, Sr., Nashville.—p. 299.
Appendicitis: 100 Cases. E. H. Baird, Dyersburg.—p. 305.
Art as Applied to Medicine. H. C. Schmeisser and J. L. Scianni, Memphis.—p. 311.
Surgery of Large Intestine. B. I. Harrison, Knoxville.—p. 315.
Chronic Glaucoma. A. C. Lewis, Memphis.—p. 319.

19: 329-373 (April) 1927

Decline of Prestige in Medical Profession. E. R. Zemp, Knoxville.—p. 329.
Railway Health Inspection. A. F. Richards, Nashville.—p. 335.

20: 33-68 (June) 1927

Surgical Abdomen. J. B. Deaver, Philadelphia.—p. 33.
Sanatorium and Home Treatment for Tuberculosis. D. Townsend, Tennessee.—p. 43.
*Digitalis and Strophanthin in Reduction of Heart Failure. S. J. House, Nashville.—p. 47.
Ephedrine in Bronchial Asthma: Two Cases. J. L. Bibb, Chattanooga.—p. 51.
Ephedrine in Rhinology. W. G. Kennon, Nashville.—p. 53.
Ephedrine. J. O. Manier, Nashville.—p. 54.
*Case of Human Rabies. R. B. Wood, Knoxville, O. H. Yarberry, Sevierville, and W. Litterer, Nashville.—p. 55.

Reduction of Heart Failure.—House calls attention to the fact that there are four drugs which, when used in conjunction with absolute rest in bed, will bring about reduction of heart failure in most instances: morphine, digitalis, strophanthin and magnesium sulphate. Absolute rest in bed is most essential, regardless of the degree of heart failure. Until the heart failure is reduced and dyspnea is no longer present, morphine should be used liberally to secure sleep and quiet. Any standard preparation of digitalis may be used, but it is well to select one and use it to the exclusion of all others when possible, for in this way the manipulation of dosage becomes much simpler. The dosage is calculated on the basis of estimated body weight, figuring 4 drachms (15 Gm.) for each hundred pounds. One drachm (4 Gm.) is administered every four hours until the calculated amount is given, medication to be stopped however, if the patient becomes nauseated. If the total calculated dose has been given and there is still no appreciable slowing of the pulse, no nausea or vomiting, and no irregularity which was not present at the outset, it is safe to continue the drug, in 1 drachm (4 Gm.) doses every four hours, until one of these effects is noted. Then digitalis should be withheld for about twenty-four hours, when it may be resumed at the rate of one-half drachm (2 Gm.) per day.

Human Rabies.—A man, seen by Wood et al., developed typical rabies about two months after being bitten on the finger by a dog. He was not given any rabies vaccine. The wound healed in about three weeks. The man died. Sections of the brain were removed for study. Stain for rabies revealed Negri bodies. Sections from the hippocampus were injected into six guinea-pigs, four rabbits and one dog. All these animals died of rabies. From the first series of rabbits that died of rabies, inoculations were made into a second series. These rabbits developed rabies on an average of eighteen days. Serum from the second series of rabid rabbits was inoculated into a third series. The third series came down with the disease in fifteen days. Up to the present time, there have been seven series inoculated. All have died of typical symptoms of rabies, and the Negri bodies were demonstrated in the entire series. The last inoculated series died in eleven days.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 909-946 (May 21) 1927

Biology and Medicine. J. S. Haldane.—p. 909.
Uterine Bleeding in Middle-Aged Women. S. G. Luker.—p. 912.
*Epiglottis in Respiratory Obstruction Under Anesthesia. H. M. Wharry.—p. 914.
Albuminuric Retinitis in One Eye, Embolism of Central Retinal Artery in Other. W. M. Beaumont.—p. 917.
*Antigen Treatment of Pneumonia in Infancy and Childhood. R. Aidin. —p. 918.
Zinc Ionization in Treatment of Suppurative Otitis Media. W. E. Crosbie.—p. 918.
Paroxysm of Auricular Fibrillation Caused by Electric Shock. E. E. Laslett.—p. 919.
*Rupture of Rectus Abdominis Muscle. C. Bennett.—p. 919.
Local Anesthesia in Submucous Resection of Nasal Septum. B. McKelvie.—p. 920.
Pedunculated Submucous Fibromyoma of Stomach. W. F. Brayne and A. I. Simon.—p. 920.

Epiglottis in Respiratory Obstruction Under Anesthesia.—Wharry discusses complete obstruction to respiration under anesthesia caused by the epiglottis alone. It is most often to be found when the patient is in the tonsil position with a sandbag under the shoulders, but may occur in other circumstances also. A long epiglottis is sometimes found tightly impacted over the laryngeal aperture, with its extreme end curved up and closely applied to the posterior pharyngeal wall. An epiglottis, although not tightly impacted, may be nevertheless lying in contact with the posterior pharyngeal wall. Knowledge of these conditions enables one to avoid a tracheotomy or laryngotomy.

Antigenic Treatment of Pneumonia.—Aidin states that in fifty-six cases of pneumonia occurring in children treated with immunogen, the duration of the disease did not appear to be shortened, but the mortality rate was reduced.

Rupture of Rectus Abdominis.—The rupture of the rectus muscle in the case cited by Bennett was the result of severe physical effort. The level of the injury was about 2 inches (5 cm.) below the umbilicus and included the whole muscle, except at its medial and lateral borders.

1: 947-992 (May 28) 1927

Loose Bodies in Joints. H. Platt.—p. 947.
*Treatment of Obstructive Lesions of Colon. J. P. Lockhart-Mummery. —p. 950.
Juvenile Rheumatism: Comparison of Reports of British Medical Association and Medical Research Council. R. Miller.—p. 952.
*Review of One Thousand Cases of Asthma. F. Coke.—p. 955.
Convulsions Occurring During Surgical Anesthesia. K. B. Pinson. —p. 956.
Appendix Reflex. A. B. Mitchell.—p. 958.
Treatment of Rodent Ulcers Near Eye. Z. Cope.—p. 959.
Microscopic and Chemical Examination of Stools in Young Children. E. Cassie and U. Cox.—p. 959.
Tapeworms and Meat Inspection. J. V. Landau.—p. 960.
Ultraviolet Rays in Treatment of Rickets. W. E. Crosbie and R. Aidin.—p. 960.
Carcinoma of Male Breast. J. A. C. Macewen.—p. 961.
Cavernous Aneurysm of Carotid. H. L. Heimann.—p. 961.
Influenzal Nephritis and Pyelitis. J. L. Delicati.—p. 961.

Colectomy for Obstructive Lesions of Colon.—Lockhart-Mummery has performed colectomy in fifty-three cases with nine deaths. There were forty-one cancer cases with seven deaths; nine cases of diverticulitis with two deaths and three cases of chronic volvulus without mortality.

Desensitization Treatment of Asthma.—Coke favors the desensitization treatment of asthma because it gives the best results. Of 223 consecutive patients replying to a letter of inquiry, only forty-four had failed to receive any benefit from the treatment; thirty-one were a little better; eighty-three were much better, and sixty-five were free from attacks.

1: 993-1018 (June 4) 1927

*Medical Aspects of Hematuria. T. Horder.—p. 993.
Observation, Coordination of Knowledge and Judgment in Diseases of Cardio-Arterial System. W. Russell.—p. 995.
Histology of Periodontal Sulcus. J. G. Turner.—p. 998.
*Healing of Gastric Ulcers. F. G. Nicholas and A. Moncrieff.—p. 999.
*Unexpected Deaths in Postoperative Period. A. R. Short and A. D. Fraser.—p. 1001.
*Nasal Infection in Children: Eighty-Five Cases Treated by Autogenous Vaccine. L. Mackey.—p. 1004.
Diagnosis of Tubal Abortion and Rupture. J. S. M. Connell.—p. 1006
Poisoning by Oil of Eucalyptus. P. Gibbin.—p. 1005.
Volvulus Neonatorum. F. M. Spencer.—p. 1005.
*Double Tubal Pregnancy. N. P. Jewell.—p. 1006.
Hydatidiform Mole. H. P. O'Keeffe.—p. 1006.
Inflammatory Sealing of External Os Causing Delay in Labor. R. Blair —p. 1006.
*Appendicitis in Infant. C. I. Ham.—p. 1006.

1: 1043-1088 (June 11) 1927

*Auricular Fibrillation. G. J. Langley.—p. 1043.
*Causation of Angina Pectoris. R. C. Shaw.—p. 1046.
Chronic Rheumatism. A. T. Todd.—p. 1048.
*Chronic Fibrous Epiploitis. R. C. B. Maunsell.—p. 1051.
Differential Diagnosis of Jaundice. B. Maclean.—p. 1052.
*Cardiothoracic Index. E. F. Skinner.—p. 1053.
Artificial Pneumothorax in Advanced Pulmonary Tuberculosis. D Pickering.—p. 1055.
Leukoblastosis of Glandular Fever. R. Craik.—p. 1056.
Pulmonary Embolism Following Fracture of Leg. E. Faraker.—p. 1056

Hematuria.—Horder discusses the hematuria occurring in cases of chronic nephritis, renal calculus, acute infections of the urinary tract, prostatitis with hyperpiesis, septic endocarditis and mitral stenosis, Henoch's purpura and polycythemia. He reports one case of hematuria due to methenamine and five unclassified cases. Two of these were cases of "essential hematuria," and one was an aneurysm of the thoracic aorta.

Healing of Gastric Ulcer.—Seventeen cases of gastric ulcer showing a crater on the lesser curvature have been observed radiologically and clinically by Nicholas and Moncrieff over a period of two years. The disappearance and reappearance of the characteristic "niche" were associated with remission and recurrence, respectively, of clinical symptoms and signs. No relation was found between the length of the history or the size of an ulcer and the rate or permanence of healing.

Causes of Postoperative Deaths.—Short and Fraser analyzed 109 postoperative deaths. The most frequent occurring causes were pneumonia or empyema, twenty-seven cases; cardiac, eleven cases; hemorrhage, twelve cases; shock, twelve cases; renal, fourteen cases; ileus or peritonitis, eighteen cases. The causes leading to operation were, in the main, peptic ulcer and enlarged prostate, sixteen cases, and gallbladder disease, twenty cases.

Vaccinotherapy of Nasal Infections.—Mackey analyzed eighty-five cases of nasal infection in children treated by autogenous vaccine. Pneumococci and *B. influenzae* were present most often. *Micrococcus catarrhalis* was found in only nine cases. Bronchitis, asthma and nasal catarrh were the diseases caused. As to results, fifty-one patients were cured, and twenty-seven were much improved. In five cases there was little or no improvement.

Double Tubal Pregnancy.—In Jewell's case one tube was ruptured. The pregnancy in the other tube was discovered at the operation.

Appendicitis in Infant.—Ham's patient was only 12 days old. At operation a scrotal hernia was found, containing the cecum and a gangrenous appendix.

Auricular Fibrillation.—Langley points out that one large factor in the causation of cardiac breakdown in auricular fibrillation is the cessation of digitalis dosage. Sufficient drug must be used to stimulate the vagus up to a point at which the degree of auriculoventricular block is just sufficient to allow impulses to pass at about normal speed from auricle to ventricle; when the block exceeds this in degree, and particularly when coupled beats, giving bigeminy, arise, the vagus is being overstimulated and vomiting is near. The usual dose necessary for patients up and about, and following such light occupations as auricular fibrillation will generally permit, is 30 minims (2 cc.) daily, and it is given in three daily doses. In a large series of cases it is found that smaller doses require periodic increase, while larger doses require periodic decrease. No effect whatever on the irregularity of the pulse must be looked for under digitalis treatment; the rhythm will remain as chaotically irregular as ever under correct dosage, but the pulse difference (the difference in speed between apical and radial counts) will be materially reduced, and in many cases will disappear altogether.

Cause of Angina Pectoris.—Evidence is given by Shaw from the clinical side in which it is shown that there are reasons for supposing the anginal syndrome to be principally the sum

of the irritation of several nervous paths, and that certain features indicate direct organic interference with those paths. Angina pectoris is probably due to a nervous lesion located in the region of the lower cervical or upper dorsal cord, the associated ganglions or their connections, exciting secondary pathologic changes in the cardio-aortic region. Shaw believes that surgical intervention in suitable cases is justifiable from the theoretical standpoint.

Chronic Fibrous Epiploitis.—Maunsell relates the case of a man, aged 54, suffering from intestinal obstruction, which was temporarily relieved by enemas. When the peritoneal cavity was exposed no intestines were visible; nothing could be seen except a smooth pearl-white membrane with slight prominences where the intestinal swellings had been felt during clinical examination. The membrane was continuous above with the peritoneum covering the stomach, was adherent to the parietal peritoneum on either side outside the colon, and was attached below along the lines of Poupart's ligament and in front of the bladder. At no point was there any adhesion to the anterior abdominal wall; the peritoneum covering appeared normal in color and texture. An opening was made through the membrane in the midline when it was found to be adherent to the intestines but separable from them by careful dissection and sponging. It soon became evident that there were three strong fibrous bands incorporated in the membrane: one was adherent deep down in the pelvis and constricted the upper part of the rectum, one compressed the lower part of the descending colon, and the third constricted the ascending colon, just beyond the cecum. When these bands were divided gas could be felt gurgling through the intestines. The membrane was removed in sections as far as the greater curvature of the stomach, over which viscus the peritoneum appeared whiter and felt thicker than normal. The intestines, when freed from the membrane, were found to be universally adherent to one another, but could be separated by sponging. No trace of anything like omentum was found. The patient made an uneventful recovery.

Cardiothoracic Index.—The method adopted by Skinner was to percuss out the borders of the heart with closed eyes and to mark the surface of the chest with a skin pencil; when the percussion was completed, a thin lead wire was run round the pencil marks and kept in position by strips of strapping. A roentgenogram was then taken with the tube carefully focused and centered at a sufficient distance to give parallel rays; the shadow produced by the heart was then compared with the much denser shadow of the lead wire. A number of measurements have been recorded. By expressing the linear cardiac dulness as the numerator and the circumference of the chest as the denominator, a fraction is obtained which at any age or sex is almost a constant; it approximated to one-sixth, and Skinner called this the "cardiothoracic index."

Glasgow Medical Journal

107: 265-328 (May) 1927

Lister Centenary Number.

Indian Medical Gazette, Calcutta

62: 239-298 (May) 1927

Filariasis Problem. F. Connor.—p. 239.
New Species of Anopheline A. Pseudoamesi Common in Bengal. C. Strickland and K. L. Chowdhury.—p. 240.
Therapeutic Investigation at Ranchi European Mental Hospital. O. Berkeley-Hill.—p. 243.
Diverticulitis. J. R. Roberts.—p. 248.
Causation of Cystitis. G. Panja and K. Banerjee.—p. 249.
*Production of Oriental Sore in Man by Flagellate Culture of Leishmania Tropica. G. Panja.—p. 250.
Method for Estimating Available Chlorine in Bleaching Powder. B. B. Brahmachari.—p. 251.
Incidence of Intestinal Parasites in Calcutta Hospital Population. D. M. Chatterji.—p. 252.
Effects of Bee Venom. A. Bayley de Castro.—p. 252.
*Silver Method of Staining Leishmania Donovani in Tissues. C. C. Basu.—p. 253.
Epidemic Dropsy at Sandwip. S. L. Sarcar and B. M. Gupta.—p. 254.
*Strange Parasite of Man. L. M. Biswas and C. Strickland.—p. 256.
*Double Intussusception. R. R. Pillai.—p. 258.
Case of Excision of Elbow Joint. S. C. Das Gupta.—p. 259.
Case of Large Parovarian Cyst in Young Woman. M. K. Pillai.—p. 261.
Case of Liver Abscess. A. K. Bhattacharya.—p. 261.
Case of Multiple Stones in Bladder. M. N. Din.—p. 262.
Case of Extravasation of Urine. A. R. Bhat.—p. 262.
Case of Hydramnios. N. M. Dave.—p. 263.
Symmetrical Enchondromata of Eyelids. G. R. Tambe.—p. 263.
Two Cases of Typhus Fever in Kumaon. R. N. Banerjee.—p. 264.
Sundry Cases: (1) Keratosis Pharyngis and Laryngis. (2) Long Sojourn of Foreign Body in Esophagus. (3) Case of Liver Abscess Bursting into Right Lung. F. H. B. Norrie.—p. 266.
Case of Blackwater Fever. T. W. Twells.—p. 268.

Experimental Oriental Sore.—A human experiment is reported on by Panja which shows that it is possible to produce oriental sore in man by intradermal injection of the flagellate culture of *Leishmania tropica*. This is the first time that this experiment has been carried out by any one. The culture used was made from a typical case of oriental sore, and was found to contain numerous living flagellate forms of *Leishmania tropica*. After the typical lesion was produced, a smear was made with the serum and stained with Leishman's stain. A large number of *Leishmania tropica* parasites were found. The patient was treated with carbon dioxide snow, applied twice a week, and the sore was cured in about a fortnight's time.

Silver Staining of Leishmania Donovani in Tissue.—The Bielschowsky-Cajal process, as modified by Gorriz, has been further modified by Basu. The tissues are fixed in solution of formaldehyde 1 part in 10 of water (neutralized with chalk); mordanted for four or five minutes at 50 C. in an ammonium bromide-solution of formaldehyde solution; washed in distilled water and transferred to a silver bath, consisting of distilled water, 6 cc., pyridine, 1 drop, and Bielschowsky's silver oxide solution, 3 cc. This bath is warmed to 45 C., and sections are kept in it until they become light brown. They are next reduced in formaldehyde solution, washed in distilled water, toned in gold chloride solution for fifteen minutes, fixed in 5 per cent sodium thiosulphate solution for a few seconds, washed, dehydrated in alcohol, cleared in "carbol-xylol" and mounted in balsam. By this method the reticular tissue and the Leishman-Donovan bodies are well stained. The organisms are best seen by artificial light with a one-seventh oil-immersion lens and number 12 compensation ocular.

Chetopod in Nose.—Biswas and Strickland relate the case of a man who presented severe symptoms of coryza. After much coughing and sneezing, he expelled a wormlike creature from his nose. It was about an inch long and had innumerable legs on both sides. It belongs to the class Chetopoda and order Polycheta. The polychetes live in sea water and their occurrence in the human body has never before been recorded. In this case, the worm entered the nose while the man was bathing.

Double Intussusception.—In Pillai's case the lower portion of the descending colon was invaginated into the upper, the apex of the intussusception being toward the cecum. The uninvolved portion of the former was felt to contain something loose inside it, which extended down to a little beyond the sigmoid flexure. In the right iliac fossa the cecum was absent, and was found invaginated into the ascending colon.

Lancet, London

1: 1169-1220 (June 4) 1927

Inflammation and Infection. E. H. Kettle.—p. 1169.
*Rheumatism in Childhood. F. J. Benjamin.—p. 1175.
Organization and Rheumatic Child. M. F. Lowenfeld.—p. 1177.
Senescence and Senility. L. Williams.—p. 1179.
Hypertrophic Ostearthritis of Cervical Spine. A. W. Hendry and A. Fowler.—p. 1181.
Water-Soluble Ovarian Hormone. F. Dickens, E. C. Dodds and D. J. T. Brinkworth.—p. 1182.
Congenital Jaundice with Hepatic Cirrhosis. R. L. Mackay.—p. 1183.

1: 1221-1274 (June 11) 1927

Fits and Faints. G. A. Sutherland.—p. 1221.
*Inflammation and Infection. E. H. Kettle.—p. 1225.
*Antiperistalsis of Duodenum: Relation to Pyloric Regurgitation. C. Bolton and R. W. A. Salmond.—p. 1230.
Acute Hepatic Abscess Treated by Operation. T. J. D. Lane and T. A. Austin.—p. 1232.
Outbreak of Paratyphoid "B" Fever Conveyed by Ice Cream. V. F. Soothill.—p. 1233.
Hypertrophy of Tonsils in Lymphatic Leukemia. F. Stoker.—p. 1236.
*Unsuspected Rupture of Spleen. F. Wilson.—p. 1236.
*Lobar Pneumonia Treated with Oil of Turpentine. J. Christie-Anderson.—p. 1237.

Rheumatism in Childhood.—Benjamin aserts that rheumatism is a disease of poor people, and that the incidence of

the disease may well be in direct relation to the degree of poverty.

Nature of Inflammation.—Kettle suggests that inflammation is not a stereotyped process or sequence of changes which occur in the tissues in response to irritation, but that it is a variable phenomenon which alters its characters according to the type of stimulus that calls it forth. Different irritants produce different results, and it should be possible to distinguish the nature of the irritant from the type of the reaction. Since microbic infection necessarily implies inflammation, it should be possible to recognize different types of inflammation corresponding to different groups of pathogenic organisms. This being so, it seems highly probable that a closer study of microbic inflammation will reveal specific tissue changes which may be of significance in the attempt to combat these infections.

Antiperistalsis of Duodenum.—Bolton and Salmond regard antiperistalsis as a normal movement of the duodenum. Its effects are to delay the food in the duodenum, to insure its admixture with the digestive juices, and to produce conditions favorable to regurgitation into the stomach. The duodenal cap is filled periodically from the duodenum, the pyloric sphincter preventing regurgitation into the stomach. In addition to its function of regulating the output from the stomach, the pyloric sphincter prevents regurgitation from the duodenum in the early stages of digestion; as digestion proceeds it commences to relax independently of gastric peristalsis, promotes regurgitation, and thus regulates the acidity of the gastric contents. An actual swing-back of food from the second part of the duodenum is not always necessary to produce regurgitation, since a full cap with a momentary relaxation of the pylorus will produce it.

Unsuspected Rupture of Spleen.—In the two cases reported by Wilson, rupture of the spleen occurred without producing definite signs of an abdominal accident. In the first case, the rupture probably occurred as the result of a fall in an epileptic seizure, and the presence of status epilepticus was not helpful to diagnosis. The patient lived three days. At autopsy a considerable amount of faintly blood-stained fluid appeared when the peritoneum was opened. The spleen was soft, enlarged, weighed 20 ounces (0.6 Kg.), and showed malarial pigmentation. On the lower surface there was a rupture 2½ inches (6 cm.) long and ¼ inch (0.6 cm.) deep filled with a semiorganized blood clot which surrounded almost the whole spleen. The second patient complained of pain in the left hypochondrium. The history given was that a log had fallen on him while he was lifting firewood. Nothing suggested an abdominal accident. Two days after admission all pain had disappeared; he was eating and sleeping well, and was allowed to move about. Nine days after admission, he again complained of pain. On palpation, tenderness, rigidity or enlargement of the spleen was not evident. Nothing suggested an abdominal catastrophe. The patient died quite suddenly on the same day. The spleen was enlarged, weighing 24 ounces (0.7 Kg.). On section numerous infarcts were seen of varying age. One recent infarct on the lower surface, about 2 inches (5 cm.) in diameter, had ruptured, as also had the capsule over it. From this point a large semiorganized blood clot spread under the capsule for a short distance and surrounded the whole of the lower surface of the spleen. The peritoneal cavity contained a small amount of straw-colored fluid, but no trace of fluid blood was seen.

Oil of Turpentine in Lobar Pneumonia.—Christie-Anderson uses a 10 per cent, pure, oleaginous solution of rectified turpentine, from 1 to 3 cc. in adults, and 0.5 cc. in children, by intramuscular injection. In no case has there been any irritation or abscess formation at the site of injection.

Medical Journal of Australia, Sydney

1: 667-702 (May 7) 1927

Teaching of Hygiene in Schools. H. Sutton.—p. 668.
Head Injuries. T. E. Lambert.—p. 671.
Probable Life of Cercaria Catellae, Echinostome Cercaria from New South Wales. B. Bradley.—p. 673.
Tonsillectomy with Guillotine. C. M. Eadie.—p. 676.
Hospital Question in Victoria. D. D. Browne.—p. 677.
Suicide. W. A. T. Lind.—p. 679.
Rheumatoid Arthritis Treated at Paralana Hot Springs, South Australia. C. C. Fenton.—p. 681.
*Bilateral Melanotic Growth of Suprarenal Gland. R. M. Smith.—p. 683.
Case of Hyperpyrexia. C. H. Lloyd.—p. 684.

Melanotic Sarcoma of Suprarenals.—Melanotic malignant growths in the suprarenal are very rare. Smith's case was odd in that both suprarenals were involved. The secondary growths were in only the upper half of the small intestine and the mesenteric glands. There were no metastases to other organs, particularly the kidneys, liver, lungs and brain.

South Africa Med. Assoc. Journal, Cape Town

1: 213-240 (May 14) 1927

Thrombo-Angiitis Obliterans—"Arteriotic Gangrene." W. Sachs.—p. 215.
Social Insurance. E. Collie.—p. 217.

China Medical Journal, Shanghai

41: 297-394 (April) 1927

Spontaneous Healing of Syphiloma of Ciliary Body. W. P. Ling.—p. 297.
Amyloid Degeneration of Conjunctiva. D. S. Bryan-Brown.—p. 304.
Spinal Anesthesia Under Novocaine-Caffeine Compound. S. F. Li.—p. 306.
New Method of Plating Fractures. K. H. Digby.—p. 316.
Endometriosis. J. R. B. Branch.—p. 325.
Endometrioma Involving Rectum. L. M. Miles.—p. 338.
Pharmaceutical Sterilization. J. Cameron.—p. 339.
Adulterations. J. Cameron.—p. 345.
Types of Breeding Places Used by Anopheles Hyrcanus in North and Central China. H. E. Meleney.—p. 347.
Medical History of Napoleon. A. L. Robinson.—p. 351.
Skin Grafting by Reverdin's Method. N. D. Fraser.—p. 364.
Intestinal Obstruction in Typhoid. H. W. S. Wright.—p. 366.
Eclampsia Treated with Magnesium Sulphate. J. D. Bigger.—p. 369.
Electrolysis of Wild Eyelashes. H. J. Howard.—p. 371.

Mitt. ü. Allg. Pathol. u. Path. Anat., Tokyo, Japan

4: 1-180 (May 19) 1927

Histologic Studies of Salpingitis Isthmica Nodosa. K. Kuge.—p. 1.
Extirpated Vagus Tumor: Pathology. S. Sekiguchi and T. Oiye.—p. 51.
*Peculiar Affection of Cartilage of Shoulder Joint. S. Sekiguchi and R. Inami.—p. 71.
*Malignant Tumors of Testis. M. Muto.—p. 102.
*Primary Malignant Chorio-Epithelioma of Kidney. M. Muto.—p. 144.
*Fibro-Adenoma of Male Breast (Mamma). M. Takahata.—p. 169.

Tophi in Shoulder Joint.—Sekiguchi and Inami report two cases of calcareous tophi in the cartilage of the shoulder joint. Both patients were women, past 40. Deviations in calcium metabolism are regarded as having etiologic significance, but positive data were not obtained.

Tumors of Testis.—Muto reviews eight cases of testis tumors: one sarcoma; one hemangioma; four giant cell malignant tumors; one epithelial tumor in a child's testis, and one embryoma.

Chorio-Epithelioma of Kidney.—Muto reports two cases of ectopic chorio-epithelioma of the kidney occurring in women, aged 39 and 45. He believes that these tumors are of embryologic origin. Tumor formation, pain and hematoma were the cardinal symptoms.

Adenoma of Male Breast.—The eight cases reported by Takahata were of the pericanalicular or intracanalicular type, or a combination of these two types. He believes that these tumors are representative of retrogressive changes in the milk ducts.

Tohoku J. of Exper. Med., Sendai, Japan

8: 501-618 (May 20) 1927

*Collecting Blood from Suprarenal of Dog. Y. Sataké, T. Sugawara and M. Watanabé.—p. 501.
Influence of Various Drugs on Physiologic Reaction Resulting from Progressively Developing Oxygen Insufficiency. R. Yosomiya.—p. 535.
*Barium Salts Should Not Be Included in Digitalis Group. K. Yamanouchi.—p. 609.
Pure Isolation of Autohemolysin. M. Namba.—p. 614.

Collecting Blood from Suprarenal.—In the method described by Sataké et al., the blood is collected from the lumbosuprarenal vein through a lumbar route operation, the operative field having been previously desensitized. The dogs are not tied or narcotized nor are they caused pain.

Barium Salts Not Like Digitalis.—Although the action of barium salts on the heart and the blood vessels presents some points of close resemblance to that of digitalis bodies, Yamanouchi believes that it would not be reasonable to include this drug in the digitalis group, for it does not possess the most important property by which the digitalis group is characterized.

Bruxelles-Médical, Brussels

7: 618-651 (March 13) 1927. Partial Index

*Two Methods of Examining the Lung. Vernieuwe.—p. 618.
Herpes Zoster in the Regions of the Ophthalmic and Superior Maxillary Nerves. Rouffart.—p. 626.

Two Methods of Examining the Lung.—One method consists in transauscultation by means of a diapason. The diapason is placed over the middle of the upper border of the sternum, or immediately above the middle point of the clavicle. The stethoscope is placed over the suprascapular fossa. This method is useful only in examination of the pulmonary apices. It allows the lesion to be located without the aid of deep breathing, percussion or roentgen rays. Hence, it may be useful in patients with hemoptysis, who must avoid effort. Transauscultation confirms the presence of such lesions as infiltration congestion, etc. It enables the course of the lesion to be followed, by the increase or decrease in the transmission of sounds. It is a valuable adjuvant of other methods of examination. Vernieuwe's other method is as follows: The sternum is divided into thirds lengthwise and the bone is percussed with the index finger at the junction of the upper and the middle thirds and at the junction of the middle and the lower thirds. In normal conditions, the sounds are identical at the two points. The first sound is less resonant than the second, when there is a lesion in the apex; in this case, percussion upon the middle of each clavicle may indicate whether the lesion is unilateral or bilateral. If the second sound is less resonant than the first, the lesion is situated in the base of the lung. This method does not define exactly the site of the lesion, but indicates where the lesion should be sought for. The methods are fully described.

Bulletin de l'Académie de Médecine, Paris

97: 707-758 (May 31) 1927

This issue is devoted to the centenary of Vulpian's birth and to that of Pinel's death.

97: 759-785 (June 7) 1927

The Microbic Flora in Malignant Tumors. A. Lumière and Montoloy.—p. 767.
*Bismuth in Prevention and Treatment of Icterohemorrhagic Spirochetosis. R. Sazerac and H. Nakamura.—p. 774.
*Pseudoleprosy or "Punudos" in Guatemala. R. Roblès.—p. 776.
Autoserum in Treatment of Bronchopneumonia in Children. Cajal.—p. 781.
Study of Pérotin Mineral Springs. G. Achard and P. Blum.—p. 783.

Preventive and Therapeutic Value of Bismuth in Icterohemorrhagic Spirochetosis.—Four guinea-pigs were injected with sodium bismuthotartrate two days after an inoculation with *Spirochaeta icterohaemorrhagiae*. The inoculation was repeated three weeks later. The animals were still alive after fourteen weeks, while the controls died in from six to eight days. The immunity against the spirochetal infection persisted up to five months after the first inoculation. Sazerac and Nakamura suggest trying the action of bismuth in prevention and in treatment of icterohemorrhagic spirochetosis in man.

Pseudoleprosy or "Punudos" Disease.—Roblès describes a disease frequent in Guatemala which is known under the name of "punudos." The disease presents lesions of the feet resembling those in elephantiasis. It begins with a circumscribed erythema accompanied by enlargement of the inguinal glands and by fever. The bones of the feet remain unchanged and disturbances of sensibility are not present. The disease is easily confounded with leprosy. The author suggests calling the disease pseudoleprosy, since the leprosy bacillus is absent.

L'Encéphale, Paris

22: 229-312 (April) 1927. Partial Index

*Study of the Cerebral Pulse. J. Tinel.—p. 229.
Myelitic Lesions in Herpes Zoster. J. Lhermitte and M. Nicolas.—p. 245. C'td.

22: 313-420 (May) 1927. Partial Index

Myelitic Lesions in Herpes Zoster. J. Lhermitte and M. Nicolas.—p. 313. C'cn.
Amnesia of Uremic Origin. H. Claude et al.—p. 329.

Study of the Cerebral Pulse in the Trephined.—Tinel's conclusions are based on observations of the cerebral pulse in five trephined patients. Excitation of the sympathetic system by way of the solar reflex resulted in constriction of the cerebral arteries simultaneously with peripheral vasoconstriction. Under the action of epinephrine, there was paroxysmal constriction of the cerebral arteries, without changes in the radial pulse. Suppression of cerebral vasomotion was noted under the influence of ergotamine. Strychnine and caffeine brought about cerebral vasoconstriction; inhalation of amyl nitrite or of formaldehyde caused cerebral vasodilatation. Inhalation of oxygen resulted in vasoconstriction of the cerebral arteries and disappearance of the cerebral pulse; this was not accompanied by vasoconstriction in the extremities. Cerebral vasoconstriction was observed under an induced hyperpnea, evidently due to excessive oxygenation. This vasoconstriction is independent of irritation of the sympathetic. It represents a direct response of the arterial walls or of the vasoconstrictor system contained in the arterial walls. The conclusion is that the brain possesses an autonomous vasomotor innervation.

Progrès Médical, Paris

53: 345-384 (March 5) 1927

Skin Reaction to Tuberculin in Children. Lesné et al.—p. 345.
Gastric Disturbances in Diseases of the Biliary Tract. F. Ramond and P. Zizine.—p. 350.
*Treatment of Distended Bladder in Chronic Urinary Retention. F. Cathelin.—p. 353.

Treatment of Distention of the Bladder in Chronic Urinary Retention.—Cathelin discusses the methods of treatment in chronic incomplete retention of urine, causing considerable distention of the bladder. He considers catheterization dangerous. Puncture or drainage of the bladder above the pubic arch is a palliative remedy. Suprapubic cystotomy appears to be the method of choice. Supplemented by transvesical prostatectomy, it may cure permanently. Prostatectomy should be done a few months later. The operation was recently performed in three patients in whom the bladder extended above the navel. One of the men was 72 years of age. The results were good in all.

Schweizerische medizinische Wochenschrift, Basel

57: 533-560 (June 4) 1927

This issue contains the proceedings of the Swiss Surgical Society (Bern, June, 1926).

Pediatria, Naples

35: 577-632 (June 1) 1927

Celiac Disease. V. Debenedetti.—p. 577.
Complement Fixation in Tuberculosis. A. Berardi.—p. 595.
Congenital Megacolon. G. Castorina.—p. 607.
Hepatoptosis. S. Fabris.—p. 616.

Policlinico, Rome

34: 273-324 (June 1) 1927. Medical Section

Hemolytic Splenomegaly with Grave Anemia. E. Greppi.—p. 273.
*The Testis and Carbohydrate Metabolism. S. Marino.—p. 301.
Insulin Sensitiveness After Castration. S. Marino.—p. 309.

The Testis and Carbohydrate Metabolism.—In experiments on dogs, Marino found that hyperglycemia from administration of dextrose or injection of epinephrine was higher and more prolonged after than before extirpation of the testes. The castration inhibited the action of insulin, although the fasting blood sugar remained the same as before.

34: 811-846 (June 6) 1927

Cervical Ribs. D. Staffieri.—p. 811.
Preliminary Stage of Mycosis Fungoides. T. Venturi.—p. 817.
*Lisbonne's Reaction in Hydrocele. N. Federici.—p. 820.

Lisbonne's Reaction in Hydrocele.—Federici found Lisbonne's test unsuitable for examination of hydrocele fluid. The object of the test is to reveal the amount of fibrinogen and thus to differentiate various exudates.

Riforma Medica, Naples

43: 457-480 (May 16) 1927

Reform of Medical Studies. A. Ferrannini.—p. 457.
Anuria from Nephrolithiasis. L. Quaranta.—p. 458.
Malignant Lymphogranulomatosis. G. Millul.—p. 460.
Colloidal Sulphur in Treatment of Gastric Cancer. G. M. Piccinini.—p. 463.
Sexual Dysfunction from Prostatic Congestion. P. G. Castellino.—p. 472.

43: 481-504 (May 23) 1927

Postoperative Tuberculosis. U. Baccarani.—p. 481.
Primary Thrombophlebitic Splenomegaly. V. Scimone.—p. 483.
Pathogenesis of Deforming Arthritis. N. Maugeri.—p. 487.

*Malaria and Physical Development. F. Negro.—p. 491.
Economic Loss from Tuberculosis and Cancer. A. Ferrannini.—p. 498.
Social Campaign Against "Adenoidism." A. D. Cioppa.—p. 501.

Malaria and Physical Development.—Children who had suffered from malaria were compared by Negro as to weight and height with children who had not had the infection. The results showed a decided unfavorable effect from malaria.

Brasil-Medico, Rio de Janeiro

41: 407-434 (April 30) 1927

Study of Cancer. A. L. Pimenta Bueno.—p. 407. C'td.
Case of Mongolian Idiocy. J. Martinho Da Rocha.—p. 415.
*Neutral Bismuth Phosphate in Syphilis. R. Souza Lopes.—p. 417.

Neutral Bismuth Phosphate in Treatment of Syphilis.—Among the advantages claimed by Souza for neutral bismuth phosphate are its stable composition and content of bismuth, its insolubility and nontoxicity, its slow absorption and painless injection. The combination with phosphorus is also of advantage, because of the tonic value of the latter.

Gaceta Médica de México, Mexico City

58: 139-194 (March) 1927. Partial Index

*The Chemical Reagent in the Wassermann Test. T. G. Perrin.—p. 173.

Priority in Reporting the Chemical Reagent in the Wassermann Test.—Perrin recalls that in 1924 he reported the possible substitution of a definite chemical reagent, namely 2 per one thousand of acetic acid, for the complex and unstable hemolytic amboceptor. The papers of Prunell, of the Pasteur Institute, date only from 1925.

58: 195-246 (April) 1927

*The Blind Inhabitants of Tiltepec. R. Pardo.—p. 195.
Histology of Trachoma. T. G. Perrin.—p. 206.

A Community of Blind Persons.—In Mexico much attention has been paid lately to the town of Tiltepec, Oaxaca, as most of its dirty and ragged inhabitants are blind. Pardo traveled by mule to this mountain nest. Forty years ago, there were 503 inhabitants, now there are barely 150. All are pale and sickly; goiter, swellings, murmurs, and various malformations and defects are rife. In the cysts on the heads of these blind people Bustamante found a filaria identical with the one obtained from similar cases in Guatemala. In the discussion Torres Estrada recalled the prevalence of this same sight destroying disease on the Pacific coast of Guatemala, Salvador and Mexican territories. It has been attributed to an onchocerca. Among the changes caused by this filariasis, hypereosinophilia is prominent.

Archiv. für exp. Pathologie u. Pharmakol., Leipzig

122: 257-384 (May) 1927

Action of Potassium on the Heart. B. Kisch.—p. 257.
*Insulin Plus Saponin by Mouth. F. Lasch.—p. 284.
Respiration with Raised Diaphragm. R. Cobet.—p. 292.
Combined Action of Nicotine and Narcotics on the Suprarenals. S. V. Anitschkow.—p. 308.
Pharmacology of Lead. B. Behrens and R. Pachur.—p. 319.
Natural and Synthetic Menthol. H. Seel.—p. 338.
Detoxicating Possibilities in Some Metal Poisonings. E. Hesse.—p. 354.
*Yohimbin and Estrus. S. Loewe et al.—p. 366.

Insulin Plus Saponin by Mouth.—Lasch concludes from his clinical experiments that this mode of administration of insulin is not suitable. A dose of 0.5 Gm. of saponin protects the insulin only in the fasting stomach. If it is administered four hours after the meal, the insulin is destroyed. Larger doses of saponin are not tolerated by patients.

Yohimbin and Estrus.—The alleged estrus-producing action of yohimbin was tested by Loewe, Lange, Voss and Paas in various rodents. The results were negative.

Archiv für klinische Chirurgie, Berlin

145: 1-672 (March 31) 1927

Charité Surgical Clinic in the Last Fifty Years. A. Köhler.—p. 1.
The Surgical Outpatient Department of the Charité. Siedamgrotzky.—p. 17.
The Rubber Glove Question. Pels-Leusden.—p. 22.
Local Immunity in Surgery, Particularly as Regards Erysipelas. H. Picard.—p. 34.
Clinical Bases of Local Chemical Irritation Therapy. C. B. Strauch.—p. 42.
Action of Cations and Vascular Function in Inflammation. F. Schück.—p. 116.
*The Ventricular Fluid and Roentgen Irradiation of the Choroid Plexus. Siedamgrotzky.—p. 122.
Surgery of the Pituitary. Tilmann.—p. 128.
Cystic Tumors of the Jaw. H. Wendriner.—p. 139.
Operative Treatment of Exophthalmic Goiter. H. Landau.—p. 144.
Esophageal Stenosis. W. Müller.—p. 156.
Localization and Metastasis of Carcinoma of the Esophagus. A. Klein.—p. 166.
Technic of Gastroscopy. E. Veillon.—p. 179.
Operative Treatment of Pylorospasm in Infants. A. Jacobson.—p. 189.
Volvulus of the Stomach. Becker.—p. 203.
Late Results of Transverse Resection for Gastric Ulcer Distant from the Pylorus. R. Bumm.—p. 233.
Surgical Treatment of Severe Constipation. Rosenbach.—p. 249.
Mesenteritis, Mesenteriolitis and Mesocolitis. F. Brüning.—p. 257.
The Incision in Radical Operation for Carcinoma of the Large Intestine, also Ileus from Intestinal Evagination. C. Pochhammer.—p. 268.
Primary Sarcoma of the Rectum. C. Ruedel.—p. 280.
The Question of Regeneration of the Gallbladder. E. Gohrbandt.—p. 286.
Closure of the Stump of the Cystic Duct After Cholecystectomy. G. Baum.—p. 299.
Cyst Involving Both Bile and Pancreatic Ducts. H. Iselin.—p. 304.
*Operative Treatment of Gallstones. A. Dührssen.—p. 310.
*Diagnosis of Renal Function. K. Heusch.—p. 321.
Genesis of Perirenal Hematoma. A. Hübner.—p. 338.
Results of Operation for Tumors of the Kidney in Childhood. H. Warner.—p. 347.
Perspective in Cystoscopy. O. Ringleb.—p. 364.
Etiology of Vesical Calculus. A. Vischer.—p. 374.
Cystitis Gangrenosa Dissecans and Treatment of Its Sequelae. A. Schüppel.—p. 380.
Endometrioid Adenomatosis and Cystadenomatosis of the Bladder. J. Müller.—p. 394.
Diverticulum of the Urethra in the Man. A. Müller.—p. 435.
Operation for Hypospadia in the Man. W. Birkenfeld.—p. 445.
Treatment of Bone and Joint Tuberculosis. P. Glaessner.—p. 455.
*Antagonism Between Periosteum and Marrow in Bone Formation. M. Katzenstein.—p. 461.
Intra-Articular Fractures. W. von Rehren.—p. 480.
*Effect of Pressure on Bone. C. R. H. Rabl.—p. 515.
Ankylosing Spondylitis. Heinemann-Grüder.—p. 527.
Gummas of the Head of the Femur. Jenckel.—p. 561.
*Effects of Pressure in the Marrow Cavity. E. Bergmann.—p. 568.
Simple Chronic Synovitis. H. Burckhardt.—p. 580.
*A Detail of Tendon Suture. H. Bonikowsky.—p. 598.
Resection of the Rami Communicantes of the Extremity Nerves. O. Stahl.—p. 600.
Importance of Periarteritis Nodosa in Surgery. P. Gohrbandt.—p. 623.
Operability of Infants. E. Hagenbach.—p. 635.
Injuries from Cactus Spines. E. Glass.—p. 658.
Deep Roentgen Irradiation and the Vegetative Nervous System. A. Rütz.—p. 663.

Effect of Irradiation of the Choroid Plexus on Production of Ventricular Fluid.—In the case described, removal of a neurinoma of the acusticus, with extensive destruction of the cerebellum, was followed by the development of a cyst at the site of the skull defect. The cyst continually refilled with fluid, which was discovered to enter from the ventricles. Various attempts to arrange an outlet for the fluid into the subcutaneous tissues or blood stream were made, but came to naught, and a fistula formed. Roentgen irradiation of the choroid plexus (dose reaching the plexus, 70 per cent of the erythema dose) was now tried, with the object of checking the secretion of the ventricular fluid. The immediate success was highly gratifying; the dressings, which previously had had to be changed three or four times a day, now needed changing only once in three days. But the old condition returned after a few weeks. The patient, who was in an extremely weak state, died. Siedamgrotzky's opinion is that the increase of fluid was due to interference with resorption from destruction of communication with the subarachnoid space. The effect observed from the irradiation he attributes to the action of the rays on the choroid plexus, as the organ producing the ventricular fluid, and he believes this experience confirms the theory that this plexus secretes, rather than filters, the fluid.

Surgical Treatment of Gallstones.—The practice of the Charité, as related by Dührssen, is to operate after the first attack, if gallstones have been diagnosed with certainty. During the attack, conservative remedies are used, and about eight days after the disappearance of the last symptoms, operation is done. Perforation into the peritoneal cavity, icterus with grave acute infection, involvement of the peritoneum in severe acute cholecystitis are regarded as absolute indications for operation. The mortality in 600 operations, including desperate cases and cases of recurrence, was 10 per cent. In simple cholecystectomy done in the interval, it was 4.9 per cent; in cholecystectomy with drainage of the ducts,

7 per cent. The results of early surgical intervention in young patients were much better.

Will-o'-the-Wisps in the Diagnosis of Renal Function.—Heusch enumerates a number of sources of error in renal function tests. The quantity of urine excreted is modified by any factor that alters blood pressure or that influences water excretion by other eliminatory organs, and is further influenced by the capacity of the tissues to hold water, which varies in different persons. The mechanism of excretion of nitrogen by the kidneys is complex and is governed by numerous physiologic factors, all of which must be investigated before a renal function test can approach accuracy. To test the working capacity of the kidney is a more realizable, though a more modest, aim. The water test (forced polyuria) provides information that is of use to the clinician, particularly the surgeon, though of little interest to the physiologist. Injection of dyes and the use of the cystoscope are valuable auxiliaries. He warns, however, against assuming any parallelism between excretion of dyes and excretion of nitrogen. Ureteral catheterization is a failure when applied to examining renal function. The urine obtained by its aid differs quantitatively and qualitatively from normally eliminated urine. The more deeply we delve into the physiologic secrets of the organism, the further does the goal, to reduce to figures the functional capacity of the kidneys, recede. When today we say "kidney," we think "blood" and to understand the kidney, we must understand the patient.

Antagonistic Action of Periosteum and Marrow in New Bone Formation.—Katzenstein's experiments were designed to test the validity of a theory, based on clinical observations, that the periosteum and bone marrow act in biologically opposite directions; that the bringing together of these two factors of bone growth, which are usually separated by the cortex, results in complete absence of formation of new bone. He performed three series of experiments on dogs and rabbits: production of bone fracture with (1) introduction of periosteum into the marrow, (2) introduction of bone marrow beneath the periosteum, (3) removal of cortex. While a few of the experiments gave negative results, Katzenstein holds that they confirm indubitably the correctness of his clinical deductions. It appears that the influence proceeds from living cells only. The clinical applications as regards pseudarthrosis are discussed.

Experiments on the Effect of Pressure on Bone.—In view of the seeming contradiction between the good results of the new technic of drawing the wires as tight as possible in bone suture and the accepted theory of atrophy from uninterrupted pressure on bone, Rabl attempted to test this theory experimentally. He applied wire springs or rubber bands to the long bones of adult rabbits and examined the bones histologically from one to six months later. The experiments do not give a final answer to the query, but they show that the matter is not so simple as has been supposed. Pressure alone plays a less important rôle than do other irritants. He thinks it probable that constant pressure leads to bone absorption only when combined with foreign body irritation, especially chemical, and that the atrophy of bone in juxtaposition to vessels and tumors is to be understood as a receding of one living part before another living part, as a result, that is, of Roux's "fight of the parts within the organism."

Experiments on the Effect of Pressure in the Marrow Cavity.—In order to imitate experimentally the gradually increasing pressure of a central bone tumor, Bergmann inserted a laminary tent, 1 cm. long, through an opening in the cortex. In the three rabbits spiral fracture took place within a few days. The fractures corresponded to the site of the laminary tent, not to that of the aperture in the bone. In one of the dogs the bone fractured after three and one-half weeks, although considerable new bone had formed from the periosteum. In the two remaining dogs the cortex withstood the pressure until they were killed, at the end of five and six weeks, respectively. In these animals the bone destruction was unimportant as compared with the large production of new bone by the periosteum; the endosteum also had formed bone, though to a much less extent. The cortex was, nevertheless, visibly eroded and microscopic examination showed that the destruction was by way of lacunar absorption. Like Rabl, he comes to the conclusion that in pressure atrophy of bone from tumor, a biologic cellular activity is a more important factor than mechanical pressure.

Locating the Proximal End of the Cut Tendon.—In eighteen instances of cut tendon, Bonikowsky found that the amount of retraction equaled, approximately, one seventh of the length of the muscle plus its tendon. He suggests utilizing this observation, if confirmed, in locating the proximal end of the tendon.

Beiträge zur klinischen Chirurgie, Berlin

139: 1-224, 1927

Irradiation and Operation in Different Types of Carcinoma. E. Opitz.—p. 3.
*Postoperative Irradiation of Carcinoma of the Breast. W. Anschütz.—p. 25.
*The Question of the Local or General Action of Roentgen Rays on Carcinoma. O. Jüngling.—p. 28.
Irradiation of Inoperable Carcinoma of the Pharynx or Larynx. V. Hinsberg.—p. 35.
Spontaneous Healing of Inoperable Carcinoma. A. Most.—p. 37.
Mechanism of Action of Hard Roentgen Rays. W. Koose.—p. 45.
Roentgen-Ray Diagnosis of Lesions of the Ureter. F. Voelcker.—p. 56.
Multiple Projections in Roentgen-Ray Examination of the Kidney and Bladder. M. Sgalitzer.—p. 78.
Horse-Shoe Kidney in the Roentgenogram. W. Boss.—p. 80.
Experiences with Renal Decapsulation. A. Tietze.—p. 88.
*Is Nephroptosis a Surgical Condition? R. Demel.—p. 96.
Clinical Study of Hypernephroma. H. Wodsack.—p. 108.
Gas Gangrene Following Subcutaneous Injections. W. Anschütz.—p. 129.
Surgical Treatment of Chronic Constipation. V. Schmieden.—p. 131.
Palpation of the Abdominal Organs in Forward Inclination of the Trunk. W. Bergemann.—p. 152.
Radiologic Diagnosis of Postoperative Biliary Fistulas. P. Walzel.—p. 155.
*Theory of Cholemic Hemorrhages. E. Melchior.—p. 162.
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Treatment of Septic Meningitis. K. Stolte.—p. 176.
Introduction of Medicines into the Brain by Lumbar Puncture. M. Sgalitzer.—p. 184.
Foreign Body in the Lung as Cause of Recurrent Pneumothorax. W. Laurösch.—p. 188.
Congenital Defects of the Spine. G. Drehmann.—p. 191.
Chondrosarcoma of the Os Calcis. S. Hadda.—p. 197.
Sarcoma of the Breast. E. Batzdorff.—p. 199.
Total Self-Emasculation. E. Batzdorff.—p. 205.
Results of Roentgenotherapy in Actinomycosis. A. von Tempsky.—p. 207.
Demonstrations. H. Küttner.—p. 217.

Postoperative Irradiation of Carcinoma of the Breast.—Anschütz insists that the value of postoperative irradiation of carcinoma is seen only in a selected group of cases. He explains the statistics of the Kiel University clinic. Small, frequently repeated doses—two thirds of the erythema dose, three fields, ten or eleven irradiations distributed over two years—have proved more efficacious than Wintz's intensive method.

Is the Action of Roentgen Rays on Carcinoma Local or General?—Irradiation of carcinoma is and will remain a local problem, in Jüngling's opinion. He does not share the hope of roentgen-ray immunization of the organism against carcinosis. Local concentration of comparatively high doses, with the utmost protection to the surrounding tissues must continue to be the aim of radiotherapy.

Is Nephroptosis a Surgical Disease?—Demel states that floating kidney is no longer operated on in Eiselsberg's clinic. Of twenty-two cases in the last twenty years, operation was done in seven; there were three recurrences.

The Theory of Cholemic Hemorrhages.—The tendency to hemorrhage in patients with icterus is regarded by Melchior as not, strictly speaking, cholemic but as having its origin in disturbances in hepatic function. The details of the genesis of the hemorrhagic tendency are not clear, but a lowered fibrinogen content of the blood does not seem to be a dominant factor.

Biochemische Zeitschrift, Berlin

185: 1-228 (May 25) 1927

Physiologic Inactivity of Capsanthin. B. von Issekutz and L. Zechmeister.—p. 1.
*Biochemistry of Menstruation. K. Klaus.—p. 3.
"Differences of Potential in the Apple." L. Michaelis.—p. 11.
Nephelometric Microdetermination of Arsenic. H. Kleinmann and F. Pangritz.—p. 14.
Idem. H. Kleinmann and F. Pangritz.—p. 44.
Estimation of Blood Catalase. P. J. Golzow and W. D. Jankowsky.—p. 61.

Action of Sugars and Magnesium on Sugar Formation from Formaldehyde. H. Schmalfuss.—p. 70.
Roentgenography of Resins. S. von Náray-Siabó.—p. 86.
*Solubility of Uric Acid in Carbonates. S. Lang and H. Lang.—p. 88.
Cleavage of Hexosemonophosphoric Acids by Muscle Extract. O. Meyerhof and K. Lohmann.—p. 113.
Production of Oxygen from Carbon Dioxide by Solutions of Protein Plus Chlorophyll. H. E. Dolk and A. G. van Veen.—p. 165.
Preparation of Sepia Melanin. O. Adler.—p. 169.
*Action of Meat on Respiratory Metabolism of Rats Fed on Fat. L. Asher and T. Honda.—p. 173.
Action of Thymus on Sensitiveness to Lack of Oxygen. L. Asher and H. Stämpfli.—p. 192.
Physiology of Germination. A. Niethammer.—p. 205.
Perhydridase from Plants. D. Michlin.—p. 216.
*Decomposition of Diacetic Acid in the Kidney. I. Snapper and A. Grünbaum.—p. 223.

Biochemistry of Menstruation.—Considerable amounts of choline were found by Klaus in the sweat of menstruating women. He isolated trimethylamine and methylamine from the menstrual blood. The former was present in larger quantities than in the normal vagina. He believes that it is a split product of choline and that it plays a rôle in preventing menstrual blood from clotting. Triphenylamine is the substance which causes the characteristic odor of menstrual blood and sweat.

Solubility of Uric Acid in Carbonates.—The Langs found that the solubility of uric acid in carbonates depends to a large degree on the carbon dioxide freed from the carbonates by the uric acid, if the carbon dioxide cannot escape from the solution.

Action of Meat on Respiratory Metabolism of Rats Fed on Fat.—In Asher's institute Honda fed rats exclusively on bacon. The basal metabolism of these animals decreased and administration of meat produced only a slight, if any, increase in metabolism. Since the liver undergoes fatty infiltration on the bacon diet, the author sees his results as an indication of the changed function of the liver.

Decomposition of Diacetic Acid in the Kidney.—Snapper and Grünbaum found that a surviving kidney decomposes beta-oxybutyric and diacetic acids.

Deutsches Archiv für klinische Medizin, Leipzig

155: 129-256 (May) 1927

Simultaneous Fractional Examination of Gastric and Duodenal Juices. A. M. Markoff.—p. 129.
Observations on the Gas-Filled Heart. E. Schott.—p. 141.
Aleukia and Agranulocytosis. G. D. Koehler.—p. 155.
*Combined Action of Phlorhizin and Insulin on Carbohydrate and Water Metabolism. F. Hirsch and O. Klein.—p. 163.
Blood Proteins in Experimental Trypanosomiasis. E. Wiechmann and H. Horster.—p. 177.
Necrobiosis of Leukocytes. E. von Philipsborn.—p. 186.
Pectoral Fremitus. R. Cobet.—p. 199.
Epigastric Pulsations. M. Hochrein.—p. 210.
Calcium and Heart-Beat Volume. S. Lauter and Baumann.—p. 222.
Pernicious Anemia. F. Hoff.—p. 235.
Action of Epinephrine on Human Blood Vessels. G. Rosenow.—p. 251.

Combined Action of Phlorhizin and Insulin on Carbohydrate and Water Metabolism.—Hirsch and Klein found that phlorhizin glycosuria was not only not counteracted by simultaneous injection of insulin, but in about 50 per cent of their experiments was even enhanced. The hypoglycemic action of insulin was also inhibited by phlorhizin.

Deutsche medizinische Wochenschrift, Berlin

53: 953-992 (June 3) 1927

Care After Operations. M. Kappis.—p. 953. C'td.
Powdered Buttermilk. L. Langstein.—p. 957.
Experimental Research on Syphilis. W. Worms.—p. 959.
Innervation of Blood Vessels. F. Brüning.—p. 962.
*Blanching Phenomenon. M. Winkel.—p. 963.
"Insulin Sensitiveness and the Suprarenals." E. Lundberg.—p. 964.
Reply. Unverricht.—p. 964.
Urea and Indican in Serum. M. Szour.—p. 964.
Krogh's Mercury Dynamometer. T. B. Wernóe.—p. 964.
Dietotherapy of Infants. E. Rominger.—p. 965.
New Remedies. J. Herzog.—p. 967.
Portable Pneumothorax Apparatus. F. von Kováts.—p. 969.
Occult Bleeding. F. Hirschberg.—p. 971.
Gonorrheal Vulvovaginitis of Children and Its Later Ascent. O. Herschan.—p. 972.
Sickness Insurance and the League of Nations. K. Finkenrath.—p. 972.
Physicians' Interests and the New Penal Code. E. Schäfer.—p. 973.
Law Regulating Professional Representation. S. Alexander.—p. 975.
Medical Students and Teachers. W. Berblinger.—p. 976.

Blanching Phenomenon.—Winkel observed white patches on the skin in two scarlet fever patients. They were localized on sites where furuncles had previously existed. In a third case the scarlet fever rash was absent around superficial scars left by chickenpox.

53: 993-1038 (June 10) 1927

*Immunization and Organotherapy in Tuberculosis. G. Schröder.—p. 993.
Treatment of Tuberculosis. E. Hoffstaedt.—p. 995.
*Relation of Tuberculosis to Hemolytic Jaundice and Pernicious Anemia. J. Neuburger.—p. 997.
Early Infiltration and Exacerbating Primary Tuberculosis. K. Dietl.—p. 998.
Roentgen-Ray Dosage in Tuberculosis of the Larynx. O. Gloguaer.—p. 999.
Diagnostic Culture of Tubercle Bacilli. W. Engel.—p. 1001.
Staining of Tubercle Bacilli in Thick Smears. A. E. Osol.—p. 1002.
Salt-Free Diet in Treatment of Tuberculosis. G. Apitz.—p. 1003.
Pyemia After Tonsillitis. H. H. Knüsli.—p. 1004.
Physiologic Observations During Duodenal Tubage. A. Kobryner.—p. 1007.
*Separation of Invisible Virus from Concomitant Bacilli. E. Friedberger and F. Hoder.—p. 1008.
Nervous Exhaustion. E. Siemerling.—p. 1009.
Ophthalmology in 1926. P. Junius.—p. 1011.
The Prussian Law as Regards Tuberculosis. M. Neisser.—p. 1012.
International Congress on Rabies. R. Pheiffer.—p. 1014.
Modern Medicine in Egypt. H. Lehfeldt.—p. 1018.
Nonspecific Infections of the Kidneys. C. H. Ludowigs.—p. 1029. C'td.

Immunization and Organotherapy in Tuberculosis.—Tubercle bacilli were cultivated by Schröder in mediums containing extracts from the spleen and the thymus. Such cultures became avirulent and most of the bacilli lost their acid-fastness. The vaccine protected rabbits to some extent against infection with the bovine type of tubercle bacillus.

Relation of Tuberculosis to Hemolytic Jaundice and Pernicious Anemia.—Neuburger confirms Matthias's observation on the extreme rarity of tuberculosis in patients with pernicious anemia. Hemolytic jaundice does not protect against tuberculosis, as is demonstrated by the case which he reports. This shows that the protective action is not due to the products of destruction of erythrocytes nor to the lack of oxygen in the tissues of the anemic patient. He recalls that polycythemia is comparatively frequent in tuberculosis.

Separation of Invisible Virus from Concomitant Bacilli.—Good results were obtained by Friedberger and Hoder in preparation of pure smallpox vaccine by Friedberger's capillary method: a strip of filter paper 20 cm. long and 1 cm. wide was dipped in glycerolated lymph diluted one to ten, and left for one hour. After this, the paper was laid for a moment on sterile agar medium and then cut into short strips. The incubated agar showed that bacteria ascended only to the height of 2 cm., while the inoculation of rabbits' cornea proved successful with strips taken at the height of 7 cm.

Klinische Wochenschrift, Berlin

6: 1073-1120 (June 4) 1927

Development of Cancer Cell. B. Fischer-Wasels.—p. 1073. C'cn.
*Mixed Drugs. S. Loewe.—p. 1077.
Calcium and Potassium of the Blood and Development of Edemas. F. Kisch.—p. 1085.
Ehrmann's Pancreas Test. R. Goetz.—p. 1087.
*The Skull in Thallium Poisoning. A. Buschke et al.—p. 1088.
Serum Calcium During Gestation. A. Bock.—p. 1090.
Enzymic Poisons and Treatment of Cancer. L. Karczag and L. Németh.—p. 1091.
*Plasmochin. W. Schulemann and G. Memmi.—p. 1093.
*Copper in Human Serum. O. Warburg.—p. 1094.
*Ox Blood and Human Blood Groups. E. Witebsky and K. Okabe.—p. 1095.
Anaphylaxis Tested on Arteries of Sensitized and Infected Animals. E. Friedberger.—p. 1095.
*Hypersensitiveness to Rubber. G. Stern.—p. 1096.
Inguinal Lymphogranulomatosis. W. Frei.—p. 1097.
Thrombocytobarins. J. L. Kritschewski.—p. 1103.

Mixed Drugs.—In Loewe's opinion, no one now doubts that a mixture of two or more drugs may have the significance of a new pharmacologic entity. The combination may have effects which cannot be obtained with any one of the constituents alone or it may have in some respects a synergistic or antagonistic effect. For instance, a suitable mixture of antipyrin and barbital causes a guinea-pig to squeal when

touched, while such a reflex was never observed with either one of the constituents in any dosage. Some combinations of barbital and acetylsalicylic acid induce flaccid paralysis in guinea-pigs. Either drug used alone causes tonic paralysis. Unfortunately many of the combinations on the market are derived simply by assuming a desired effect instead of by the tedious way of finding the optimal proportions by experimentation on different species of animals and by reliable clinical tests. He presents a graphic representation of the effects of combinations.

The Skull in Thallium Poisoning.—Buschke, Christeller and Loewenstein publish their observations on the changes in the cranial bones in rats poisoned with thallium acetate. The bones resemble in some respects those seen in rickets, osteomalacia and even fibrous osteitis and the changes are probably due to endocrine disturbances caused by thallium.

Plasmochin.—Schulemann and Memmi report their experience with 120 malaria patients. The preparation is tolerated by patients with idiosyncrasy to quinine and in black water fever. In the estivo-autumnal form its action differs considerably from the action of quinine. It destroys the sexual forms of the parasites rapidly, while the action on the asexual forms is less pronounced than that of quinine.

Copper in Human Serum.—In the human blood serum Warburg found copper constantly in amounts of from 0.1 to 0.2 mg. per hundred cubic centimeters. For its estimation he developed a micromethod which allows the determination of iron, copper and manganese in amounts little larger than 0.00001 mg. Cystein is placed in a chamber containing the serum and a buffer; then it is shaken with air and the speed of absorption of oxygen is observed manometrically. The cystein is oxidized only in the presence of iron, manganese or copper. Manganese is recognized by addition of hydrocyanic acid. Copper is present, if the oxidation is not inhibited by sodium pyrophosphate.

Ox Blood and Human Blood Groups.—In about 25 per cent of the cattle examined by them, Witebsky and Okabe found erythrocytes that were agglutinated by serums that agglutinate human corpuscles of group A. Some cattle serums agglutinated human blood of group A to a much greater extent than blood from subjects of other groups. The authors also confirm the fact that some cattle serums agglutinate human erythrocytes of group O more markedly than erythrocytes of other groups. Yet this agglutinin disappeared on adsorbing such serums with corpuscles of the AB group. Consequently they consider that the existence of a special receptor O is not established.

Hypersensitiveness to Rubber.—Stern's patient suffered from urticaria and Quincke's edema. After six months it was discovered that the condition was due to hypersensitiveness to the rubber contained in a dental prosthesis.

Medizinische Klinik, Berlin

23: 821-858 (June 3) 1927

Nutritional Disturbances of Infants. E. Müller.—p. 821.
*Unusual Amount of Lime in Blood Vessels and Bones. M. Cohn and H. Salinger.—p. 825.
*Distomiasis of the Liver in Man. F. Paul.—p. 829.
Physical Diagnosis of the Lungs. E. Czyhlarz and E. Pick.—p. 834.
Treatment of Syphilis and Increased Frequency of Aortitis and Neurosyphilis. E. Langer.—p. 835.
Treatment of Metal Poisonings. H. Sieben.—p. 836.
*Primrose Dermatitis. W. Eitel.—p. 837.
Diagnostic Culture of Tubercle Bacilli. G. Schrader.—p. 838.
Suicide and War Service. A. Simon.—p. 841.
Roentgen-Ray Diagnosis. L. Freund.—p. 843.
The Physician and Reform of the Marriage Laws. J. Heller.—p. 857.

Unusual Amount of Lime in Blood Vessels and Bones.—Cohn and Salinger describe a case of pronounced calcification of peripheral arteries. The patient, a woman 60 years of age, was described thirteen years ago by Magnus-Levy. In spite of the changes in the arteries she is able to do janitor's work and to mount stairs (she lives on the fifth floor). A composite roentgen-ray picture of the whole body is reproduced. The authors describe, besides this, four cases of osteosclerosis and point out that there are embryologic relations between the diffuse calcification of arteries and of bones.

Distomiasis of the Liver in Man.—Paul describes three cases of infection with *Fasciola hepatica* in man. There was advanced cirrhosis of the liver in one of the patients. The blood contained from 32 to 42 per cent of eosinophils. Preparations of filix may be recommended, especially in the early stages.

Primrose Dermatitis.—Eitel believes with the botanist Ulbrich that only about 6 per cent of people are hypersensitive to the primrose. He recommends washing the hands and face with a solution of 1 to 2 tablespoonfuls of sodium bicarbonate in 1 liter of water in prevention as well as in treatment of the dermatitis.

23: 859-896 (June 10) 1927

Blood Transfusion. H. H. Schmid.—p. 859.
*Is Nephrosis a Disease of the Kidneys? H. Knauer.—p. 862.
Incurable Gallstones (Hepatic Calculi). W. Kausch.—p. 867.
Acute Lymphatic Leukemia. T. Dengler.—p. 868.
Injection Treatment of Hemorrhoids. P. Bonheim.—p. 870.
Idiosyncrasy to Zinc. Pappenheimer.—p. 871.
*Absorption of Ultraviolet Rays by the Blood and by Lipoids. R. Suhrmann and W. Kollath.—p. 872.
Tuberculosis as Service Injury. Von Schnizer.—p. 878.
Cavitation and Prognosis of Tuberculosis. S. Gräff.—p. 880.

Is Nephrosis a Disease of the Kidneys?—Knauer agrees with those authors who regard nephrosis as a disease of the entire organism, especially in regard to fats and lipoids, and the changes of the kidneys as merely one of its manifestations. Low blood pressure is the rule in patients with nephrosis. Subcutaneous injection of from 0.5 to 0.75 milligrams of epinephrine did not increase the blood pressure in his patients. Exclusive meat diet resulted in an alkaline urine and in clinical improvement.

Absorption of Ultraviolet Rays by Blood and Lipoids.—Suhrmann and Kollath found that lipoids extracted from blood absorb ultraviolet rays.

Münchener medizinische Wochenschrift, Munich

74: 877-916 (May 27) 1927

*Whooping Cough and Allergen-Free Chambers. W. Storm van Leeuwen and W. Kremer.—p. 877.
Simulation of Surgical Diseases by Leukemia. H. von Seemen.—p. 878.
Treatment of Pernicious Anemia. J. Neuburger.—p. 881.
Biologic Tests with Much's Lipoids. A. Haim.—p. 884.
Problem of Lipoids. A. Lenhartz.—p. 887.
Detoxication of Tetanus Toxin, Ricin and Some Alkaloids. J. Schubert.—p. 888.
Blood Groups in Saxony. Loele and I. Krumbiegel.—p. 890.
Blood Counts in the Dark Field. F. Sieke.—p. 891.
*Treatment of Neuralgia of the Trigeminus. D. Kulenkampff.—p. 891.
Treatment of Scoliosis. Gaugele.—p. 893.
*Procteurynter to Promote Uterine Contractions. W. Nettesheim.—p. 894.
Constitutional Eosinophilia. E. Smits.—p. 896.
Gastric Hemorrhage from Foreign Body. B. Lorenz.—p. 897.
*Perforation of Ear Drum as Cause of Drowning. F. Bruck.—p. 897.
Surgery of Pulmonary Tuberculosis. F. Michelsson.—p. 897.
Medical Impressions from Siberia. E. Gückel.—p. 899.
Legislation on Venereal Diseases. Görl.—p. 900.

Whooping Cough and Allergen-Free Chambers.—Storm van Leeuwen and Kremer report on their experience with five children suffering from whooping cough. The children were brought into a chamber which was built in a hospital room and ventilated with air freed from allergens. Although the previous condition of the patients had been comparatively serious, it changed from the moment they entered: not one grave paroxysm with cyanosis occurred in the chamber. Only a few light paroxysms were observed, and these stopped within a very few days. Some of the children had a recurrence of light paroxysms after leaving the chamber.

Conservative Treatment of Neuralgia of the Trigeminus.—Scar formation is attributed by Kulenkampff to the use of too large amounts of alcohol. He injects at first only a few drops of a 2 per cent solution of procaine hydrochloride. The instantaneous disappearance of pain indicates the correct or almost correct position of the needle. After this he injects 0.25 cc. of alcohol. If the latter injection is painful, the site is not perfect and 0.5 cc. may be necessary. He leaves the needle in place and removes it after a few hours if the pain does not return. Otherwise he repeats the injection.

Procteurynter to Promote Contractions of the Uterus.—Nettesheim appreciates the absence of the possibility of causing infection with Klein's method. The introduction of

Barnes' bag or Braun's metreurynter into the rectum is easy. Good uterine contractions were obtained in thirty-seven out of eighty women who did not react to other means. Intramuscular injection of quinine aids the pains. The method is of especial value in premature rupture of the membranes.

Perforation of the Ear Drum as Cause of Drowning.—Many instances of sudden and unexplained drowning of good swimmers are due, Bruck says, to the irritation of the labyrinth by the cold water penetrating into the middle ear through a perforated ear drum. Dizziness and disturbances of equilibrium result. In swimmers with perforation of the ear drum, the ear should be plugged with cotton soaked in petrolatum.

Virchows Archiv für path. Anat. und Physiol., Berlin

264: 563-829 (May 28) 1927

Reinfection in Pulmonary Tuberculosis. A. Ghon et al.—p. 563.
*Experimental Amyloidosis from Silicic Acid. M. Murata and S. Yoshikawa.—p. 587.
*Reaction of Pathologic Leukocytes to Tubercle Bacilli in Vitro. A. D. Timofejewsky and S. W. Benewolenskaja.—p. 605.
Oxidase Reaction and Cellular Metabolism. M. Staemmler.—p. 618.
Reticulo-Endothelial Apparatus and Lymphogranulomatosis. F. Sachs and F. Wohlwill.—p. 640.
The Spleen in Peritonitis. P. Heilmann.—p. 669.
Hypernephroid Sarcoma of the Kidney. M. Brandt.—p. 677.
Combination of Thyroid Struma of the Ovary with Pseudomucinous Cystoma. H. Haggag.—p. 686.
"Fragmentation of Myocardium." S. Saltykow.—p. 697.
Chronic Fibrous Polyserositis. A. Borrmann.—p. 700.
Gummas of the Heart. H. Jansen.—p. 730.
Myxomas of the Heart. D. Schwarz.—p. 747.
Tonsillitis with Increase of Lymphoid Cells in the Blood. W. Schultz and F. Mirisch.—p. 760.
*Eosinophilia. J. K. Mayr and C. Moncorps.—p. 774.
Oxidizing Substances. W. Loele.—p. 809.

Experimental Amyloidosis from Silicic Acid.—Ten grams of rice straw ash was added by Murata and Yoshikawa to the food of each of sixteen rabbits. Five of these rabbits—all that lived longer than one hundred days—developed amyloidosis. Since silica is the main component of this ash, the authors made experiments with administration of colloidal silicic acid or of sodium silicate by mouth and by injections—also with a number of positive results. The amount of sodium silicate fed daily was 10 cc. of a 10 per cent solution.

Reaction of Pathologic Leukocytes to Tubercle Bacilli in Vitro.—Timofejewsky and Benewolenskaja explanted myeloblasts from the blood of a patient with acute myelogenous leukemia and infected the cultures with tubercle bacilli. Typical epithelioid tubercles developed in vitro. The cultures from the blood of patients with chronic myelogenous leukemia and especially from normal blood are less resistant to tubercle bacilli. The growth of tubercle bacilli seemed to be inhibited in the cultures of myeloblasts, which, however, did not develop in the usual way into granulocytes or fibroblasts.

Eosinophilia.—Mayr and Moncorps describe the preparation of a protein-free extract from the spleen. Subcutaneous injections of the extract lowered the number of eosinophils in the blood and proved valuable in treatment of itching dermatoses, especially of the allergic type.

Wiener klinische Wochenschrift, Vienna

40: 701-740 (June 2) 1927

Teaching Laryngology and Rhinology. M. Hajek.—p. 701.
Development of Otology. H. Neumann.—p. 704.
Thrombophlebitis in Acute Otitis. G. Alexander.—p. 705.
*Congenital Syphilitic Diseases of the Labyrinth. O. Beck.—p. 707.
Indications for Surgery in Acute Mastoiditis. C. Biehl.—p. 709.
*Relapse of Cholesteatoma and Diseases of the Labyrinth After Radical Interventions. G. Bondy.—p. 710.
Erysipelas After Tonsillectomy. M. Buchband.—p. 711.
Sinus Thrombosis. L. Deutsch.—p. 713.
Diseases of the Labyrinth in Cancer Remote from the Ear. K. Eisinger.—p. 714.
Earache from Inflammation of the Mandibular Joint. L. Forschner.—p. 715.
Tests of Hearing. H. Frey.—p. 717.
Complication of Esophageal Cancer. F. Haslinger.—p. 719.
Tonsillectomy in Phlegmon. G. Hofer.—p. 720.
Ear Symptoms in Poisonings. E. Ruttin.—p. 722.
Strumectomy or Bronchostomy? E. Suchanek.—p. 724.
Word and Tone Deafness. E. Urbantschitsch.—p. 726.
Germinal Centers in the Tonsils. R. Waldapfel.—p. 728.
Psychotherapy of Vomiting of Pregnancy. H. Kogerer.—p. 730.
Glycosuria and Life Insurance. E. Czyhlarz.—p. 830.

Congenital Syphilitic Diseases of the Labyrinth.—Beck concludes that the diseases of the acoustic nerve observed in congenital syphilis affect primarily the connective tissue of the internal ear. The nerve becomes involved only secondarily. This view is strengthened by the fact that the other two members of the triad (parenchymatous keratitis and Hutchinson's teeth) are also localized in mesodermic structures.

Relapse of Cholesteatoma and Diseases of the Labyrinth After Radical Interventions.—Bondy reports three cases of relapse of cholesteatoma in an ear on which the radical intervention had been performed from seventeen to twenty years previously. This shows the necessity for regular reexamination of apparently cured patients.

40: 741-772 (June 9) 1927

Teaching and Research in Ophthalmology. K. Lindner.—p. 741.
Preoperative and Postoperative Iodine Treatment of Exophthalmic Goiter. F. Schürer-Waldheim.—p. 745. C'td.
Spirillosis After Chronic Tonsillitis. B. Busson.—p. 748.
Spontaneous Rupture of Abdominal Muscles. H. Krasso.—p. 751.
*Treatment of Emphysema with Ephedrine. S. Saxl.—p. 754.
*Artificial Blood Circulation in the Cadaver. R. Eisenmenger.—p. 755.
Causes and Treatment of Ulcerous Colitis. H. Schur.—p. 756.
Active Treatment of Flatfoot. F. Pekarek.—p. 759.
Sleep and Hypnotics. E. P. Pick. Supplement.—pp. 1-16.

Treatment of Emphysema with Ephedrine.—Saxl used ephedrine hydrochloride (three tablets daily) in treatment of emphysema of the lungs. The results were better than with any other drugs. The blood pressure in his patients was low, as is usual in grave emphysema, and did not increase much under this treatment.

Artificial Blood Circulation in the Cadaver.—Eisenmenger reports experiments made with his apparatus on dead human bodies. The apparatus is applied to the abdomen and rhythmically aspirates and compresses the overlying air. This action produces an artificial circulation of the blood. He believes that the method might prove useful in resuscitation.

Zeitschrift f. d. ges. experimentelle Medizin, Berlin

55: 287-606 (May 18) 1927

Chemistry of the Aging Process in Costal Cartilage. M. Bürger and G. Schlomka.—p. 287.
Aging of Mineral Water and Its Action on Metabolism. A. Bickel.—p. 303.
Nature of Extrasystoles and Tachycardia. S. de Boer.—p. 326.
*Extirpation of the Pineal Gland and Gonads. A. Yokoh.—p. 349.
*Glycemia and Section of the Vagus and Splanchnic Nerves. K. Dresel and F. Omonsky.—p. 371.
Permeability of the Meninges. R. Sünderhauf.—p. 378.
Tryptic Origin of Gastric Ulcer. E. Stahnke and T. Hsieh.—p. 403.
Physical Chemistry of Serum. J. M. Goldberg.—p. 413.
Capillary Circulation and Organotherapy. K. A. Bock.—p. 425.
Inhalation of Insulin. A. Palm.—p. 432.
Body Fluids and Vital Staining. O. Homuth.—p. 445.
*Reaction of Blood Vessels of the Inflamed Lung to Poisons. W. W. Sakussow.—p. 465.
Uric Acid Metabolism and Gastric Secretion. L. Kürti and G. Györgyi.—p. 475.
p_H of Gastric Contents After Various Test Meals. J. Vándorfy and E. Baráth.—p. 481.
Standardization of Ovarian Hormones. F. Uhlmann.—p. 487.
Hemolysis in the Spleen. E. Lauda.—p. 505.
Chemistry of the Bone Marrow in Anemias. H. Jastrowitz.—p. 523.
Experiments on the Vegetative Nervous System. E. Herzfeld et al.—p. 547.
The Skin and Production of Immune Substances. K. Hajós.—p. 551.
*Resorption of Blood from Peritoneal Cavity. J. Fischelson.—p. 557.
Bacteria and Nucleal Staining. K. Voit.—p. 564.
Yeast and Nuclear Staining. K. Voit.—p. 569.
"Encephalitis in Eck Fistula Dogs." H. Hoff and F. Silberstein.—p. 572.
*Living Peritoneum as Dialyzing Membrane. D. Engel and A. Kerekes.—p. 574.
Intracutaneous Galvanization. G. Bruns and H. Vollmer.—p. 602.

Extirpation of the Pineal Gland and Gonads.—Rapid growth was observed by Yokoh in young roosters after extirpation of the pineal gland. The testes grew with especial rapidity. When he extirpated the testes also, the whole body became hypotonic and the resistance to injurious agents was lowered. The anterior lobe of the pituitary increased more than twofold and contained more eosinophilic cells and less basophilic cells than in normal animals. The middle lobe did not increase in size to so great an extent. The

thymus persisted and hematopoietic foci in the salivary glands and spleen were frequent.

Glycemia After Section of Vagus and Splanchnic Nerves.—Dresel and Omonsky made their experiments on rabbits. Section of the splanchnic nerves lowered epinephrine hyperglycemia and enhanced insulin hypoglycemia. Vagotomy enhanced the action of both hormones. Simultaneous section of the splanchnic nerves and of the vagus counteracted epinephrine hyperglycemia and increased markedly the action of insulin.

Reaction of Blood Vessels of the Inflamed Lung to Poisons.—Sakussow found that the blood vessels of isolated inflamed lungs react much less strongly to poisons than those of normal lungs.

Resorption of Blood from the Peritoneal Cavity.—Fischelson's experiments indicate that blood is resorbed from the abdominal cavity chiefly by the lymphatic vessels. The resorption begins in from ten to fifteen minutes and most of the blood disappears within twenty-four hours.

Living Peritoneum as Dialyzing Membrane.—Engel and Kerekes injected animals with various dyes and perfused the peritoneal cavity in order to test the possibilities of therapeutic dialysis of blood. Only acid dyes were obtained from the indifferent peritoneal fluid. Basic dyes appeared in it only if the fluid was acidified. The practical outlook for a "vital dialysis" is slight.

Zeitschrift für klinische Medizin, Berlin

105: 539-794 (May 27) 1927

*Water Excretion in Orthostatic Albuminuria. R. Seyderhelm and E. Goldberg.—p. 539.
*Insulin and Water Metabolism in Nondiabetic Individuals. W. B. Meyer et al.—p. 552.
Constitution and the Moisture of the Skin. M. Berliner and J. Arendt.—p. 594.
Anatomy and Clinical Picture of Diabetes Insipidus. E. Zadek.—p. 602.
Alimentary Glycemia in Diabetes. H. Mauerhofer.—p. 641.
*Surgical Treatment of Diabetes. J. A. Goljanitzki and N. N. Smirnowa.—p. 661.
Carbon Dioxide Baths and the Blood Sugar Level. L. B. Buchstab and I. M. Sribner.—p. 669.
Polycythemia from Blood Poisons. A. Arrak.—p. 679.
*Sedimentation Speed of Leukocytes. E. Bauer.—p. 708.
Technic of Leukocyte Counts. M. Ueckert.—p. 714.
Action of Turpentine Abscesses. H. Wendt and F. Weyrauch.—p. 736.
Milky Exudates. N. J. Rosanow.—p. 744.
Proteolytic Enzymes in Urine. M. Schierge.—p. 753.
Foot Races by Young Persons. W. Wadi.—p. 756.
Action of Volatile Oils on the Kidneys. D. M. Rossiysky.—p. 766.
*Distribution of Phenolsulphonphthalein After Injection of Merbaphen. E. Bernheim.—p. 781.
"Epinephrine Reaction." K. Csépai.—p. 789.

Water Excretion in Orthostatic Albuminuria.—Seyderhelm and Goldberg investigated the elimination of water in subjects with orthostatic albuminuria, after drinking 1 liter of water or of physiologic solution of sodium chloride. In both instances the excretion was greater than in normal subjects, even in the upright position. The extrarenal elimination of water was also higher. They conclude that there is considerable general disturbance of water metabolism in these patients.

Insulin and Water Metabolism in Nondiabetic Individuals.—Insulin was not found by Meyer, Seckel and Kallner to have any influence on water metabolism in diabetes insipidus or in exophthalmic goiter. They confirm the observations made on inhibition of diuresis in patients with disturbances of the liver. Insulin improved diuresis in some of these. In doses up to 1 unit per kilogram of body weight, insulin causes in healthy infants a retention of water in the tissues with resultant inspissation of the blood and oliguria. The action of insulin on water metabolism in healthy adults is irregular.

Surgical Treatment of Diabetes.—In two patients Goljanitski and Smirnowa ligated Stenson's duct on one side and in a third patient they also implanted submaxillary glands. They are inclined to attribute improvement in carbohydrate tolerance to these interventions on the salivary glands, but emphasize the fact that full compensation for deficient pancreatic secretion could not be obtained. One of their patients died about nine months after the ligation of the salivary duct.

Sedimentation Speed of Leukocytes.—The sedimentation speed of leukocytes was determined by Bauer in eighty-five patients. It is independent of the number of leukocytes as well as of the proportion of ripe and immature forms. It parallels, however, the toxicosis of the patient.

Distribution of Phenolsulphonphthalein After Injection of Merbaphen.—Bernheim found that elimination of phenolsulphonphthalein was impaired during diuresis induced by merbaphen. He attributes this to a disturbance affecting not only the excretion of the dye by the kidneys but also its secretion into the blood stream by the tissues.

Zentralblatt für Chirurgie, Leipzig

54: 897-960 (April 9) 1927

Hemorrhagic Pyelitis. O. Rumpel.—p. 897.
Radical Operation for Inguinal Hernia. E. Baumann.—p. 900.
*Treatment of Bleeding Nipple. F. J. Kaiser.—p. 905.
Nomenclature of So-Called Sepsis. R. Bertelsmann.—p. 910.
*Dangers in Correction of Contractures. H. G. Zwerg.—p. 914.

Treatment of Bleeding Nipple.—Kaiser holds that all cases of bleeding nipple should be treated surgically. Whether the operation shall be conservative or radical, depends primarily on the clinical aspect. He cites two cases from his practice, in which a breast lesion associated with bleeding from the nipple had been at first apparently benign, but ended as carcinoma.

Necrosis After Operative Straightening of Joints.—Zwerg points out that in the operative straightening of contracted joints, the stretching of blood vessels may cause the blood supply to be shut off, with resultant trophic disturbances. This danger is illustrated by two cases from the Königsberg university clinic, in each of which operative correction of contracted fingers was followed by necrosis of the tissues distal to the site of the stretching of the arteries.

Zentralblatt für Gynäkologie, Leipzig

51: 897-960 (April 9) 1927

Leukoplakia and Precancerous Change in the Squamous Epithelium. O. von Franqué.—p. 898.
Precancerous Changes in the Portio. H. Hinselmann.—p. 901.
Etiology of Ulcus Rodens Vulvae. A Rieck.—p. 904.
Squatting Position in the Third Stage of Labor. F. Lichtenstein.—p. 908.
Transfusion in Inversion of the Uterus. G. Haselhorst.—p. 910.
*Death in Eclampsia Without Spasms. R. Pohl.—p. 913.
Supernumerary Mammary Glands. W. J. Schmidt-Tannwald.—p. 917.
Remote Reflex Pain in Gynecologic Diseases. C. Stanca.—p. 922.
Conception with Intact Hymen. B. P. Fomenko.—p. 926.

Death in Eclampsia Without Spasms.—A woman, aged 40, who had borne two children, the last eight years before, went through the first six months of pregnancy without abnormal symptoms and without consulting a physician. Swelling of the legs set in, followed by slight headache and nausea. She went to bed in the late afternoon and slept intermittently till two in the morning when she had several severe attacks of vomiting. About four she fell into a condition characterized by her husband as deep sleep, with stertorous breathing, from which she could not be roused. She was now removed to the hospital, where she died within a few minutes. The urine contained a large amount of albumin and the necropsy left no doubt as to the eclamptic nature of the condition. The lateral ventricles and the fourth ventricle were filled with blood. The disease seems to have passed from the prodromal directly into the comatose stage, which could be accounted for by the hemorrhage of the brain. An explanation of the latter may be sought in toxic injury to the blood vessels or the condition may be regarded as an apoplexy of pregnancy. The condition of the kidneys justifies the assumption of high blood pressure.

51: 961-1024 (April 16) 1927

Adenofibrosis in an Old Abdominal Wound. O. Polano.—p. 962.
*The Question of Intra-Uterine Respiratory Movements. R. Dyroff.—p. 963.
Primary Carcinoma of the Fallopian Tube. E. Kittler.—p. 971.
Destructive Hydatid Mole. K. von Oettingen.—p. 980.
Rupture of Uterus in Cesarean Section Scar. P. Schumacher.—p. 986.
*Changes in Tonus of the Myomatous Uterus. O. Beuttner.—p. 991.
Indication for Salpingostomatoplasty. F. Peyser.—p. 995.
*Cutaneous Streaks on the Arm. J. S. Galant.—p. 996.
Tubal Insufflation. R. A. Tschertok.—p. 998.

The Question of Intra-Uterine Respiratory Movements.—Investigations on animals and on the human fetus lead

Dyroff to the belief that, in the absence of disturbances of circulation, respiratory movements on the part of the fetus do not take place.

Contraction and Relaxation of the Myomatous Uterus.—Experience has confirmed Beuttner in the correctness of his observation published thirty years ago, that the nonpregnant as well as the pregnant uterus may undergo changes in tonus. He describes four cases in which this phenomenon was present with myoma. In the last it could be demonstrated at will on the unopened abdomen, the palpitating hand only being necessary.

Cutaneous Streaks on the Arm of a Pregnant Woman.—A woman, aged 22, in the fifth month of her first pregnancy, presented striae gravidarum on the thigh and precisely similar streaks on the arm. The fact that the patient, who was markedly asthenic, was employed in a library where she was required to take down from the shelves, carry and replace heavy books, leads Galant to the conclusion that these streaks may be caused by excessive exertion that entails stretching of the skin. He offers this suggestion for the etiology of the streaks in men.

Zentralblatt für innere Medizin, Leipzig

48: 529-560 (May 28) 1927

Pütter's Triglandular Theory of Secretion of Urine. F. Volhard.—p. 530. C'td.

48: 561-576 (June 4) 1927

Pütter's Triglandular Theory of Secretion of the Urine. F. Volhard.—p. 561.

Russkaya Klinika, Moscow

7: 469-668 (April) 1927. Partial Index

Ideas in Modern Surgery and in Endocrinology. V. A. Oppel.—p. 478.
Causes of Death in Exophthalmic Goiter. O. S. Bokastova.—p. 490.
The Somatic Cyclothymia Question. D. D. Pletneff.—p. 496.
Spontaneous Cure of Malignant Tumors. A. D. Prokin.—p. 506.
*Sympathectomy in Cases of Postencephalitic Parkinsonism. V. N. Rozanoff and S. A. Chugunoff.—p. 522.
Surgical Treatment of Angina Pectoris. V. I. Dobrotvorskiy.—p. 528.
*A Possible Cause of Recurrence of Inguinal Hernia. P. P. Sitkovskiy.—p. 548.

Periarterial Sympathectomy in Treatment of Postencephalitic Parkinsonism.—Rozanoff and Chugunoff report nine cases of postencephalitic parkinsonism which they treated by periarterial sympathectomy on the carotids. In three instances this was associated with extirpation of the superior cervical ganglion. The operation was performed on the side opposite to that on which the morbid signs were most pronounced. The incision was made along the internal border of the sternocleidomastoid muscle. Local anesthesia was used as well as general anesthesia. Considerable improvement with restoration of the capacity for work took place in two. In four, the only result was reduction of the rigidity; in three, the operation failed. The results were less valuable in cases of more than two years' standing. The favorable action of the sympathectomy is ascribed to the consequent hyperemia. Owing to the latter, the perivascular and pericellular edema disappear, and the nutrition of the nerve cells is improved. There may also be changes in the permeability of the cerebral vessels favoring development of a local immunity.

A Possible Cause of Recurrence of Inguinal Hernia.—In five cases of inguinal hernia in which a second operation was performed on account of recurrence, Sitkovskiy found that at the first operation the muscles had been sutured to an aponeurotic fold of the external oblique muscle instead of to Poupart's ligament. He believes that this technical mistake may be a factor in recurrence of inguinal hernia.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

71: 1685-1872 (April 2) 1927

Anesthetizing the Upper Teeth. J. J. de Vries.—p. 1688.
*Case of Polyglandular Insufficiency. F. Briedé.—p. 1693.
Bronchospirochetosis. L. S. Huizenga.—p. 1698.
Narrowing of the Pupils of the Isolated Iris in Response to Light. A. W. H. van Herk.—p. 1704.
Vaccination Against Influenza. A. G. W. van Waveren.—p. 1708.
Bilateral Acute Spasms of the Muscles Governing Accommodation with Blepharospasm. H. J. M. Weve.—p. 1709.
Medical Literature of Holland from 1680 to 1857. C. C. Delprat.—p. 1711.
Classic Wonder-Working Remedies. M. A. van Andel.—p. 1825.
Joseph Lister. B. A. G. Veraart.—p. 1832.

Endocrine Disturbances Dating from Pregnancy.—Briedé describes the case of a woman, previously healthy and active, who, for the last four years, had been repeatedly attacked by infections and was always sickly. The last severe illness, pneumonia, was followed by transient psychic disturbances, somnolence and extreme weakness. The skin presented both hyperpigmented and depigmented areas; on the extremities it was atrophic. The mucous membrane of the tongue was also atrophic. The nails and hair were brittle and on some of the fingernails there were white bands. The blood picture showed anemia with leukopenia-lymphocytosis. There was a tendency to hemorrhage. The menses had stopped since the pneumonia. Her speech was slow and difficult and her mental action sluggish. All these disturbances, which obviously represent polyglandular insufficiency, date from the last (the eighth) childbirth, and Briedé believes that the cause of the breakdown of the organs of internal secretion must be sought in that pregnancy.

71: 2063-2214 (April 16) 1927

*Normal and Subfebrile Temperature. G. J. Huét.—p. 2064.
A Female Sex Hormone. E. Laqueur et al.—p. 2077.
Chylangioma and Chylous Fistulas. C. Knapper.—p. 2089.
Lesions from Being Run Over Before and After Death. J. P. L. Hulst.—p. 2103.
Electrocoagulation in Gynecology. B. S. Ten Berge.—p. 2110.
*Accessory Placenta Causing Death of Fetus. P. Klumper.—p. 2120.

Normal and Subfebrile Temperature in Children, Particularly in Tuberculosis.—Huët compared the temperature of 104 children with a positive tuberculin reaction but without active lesions with that of 118 children with a negative tuberculin reaction. The latter group consisted of asthenic and nervous children, children who had recovered from bronchitis and children who were still suffering from bronchitis. A type of temperature that could be considered characteristic for tuberculosis was not discovered. He believes that the temperatures recorded were normal. He found, further, that the age of the child influenced the temperature. The usual evening maximum of children below 9 years was between 37.5 and 37.6 C.; that of children from 13 to 16, between 37.3 and 37.4 C. The temperature was at its lowest between midnight and three in the morning, at its highest at noon or at three in the afternoon. A further series of children, including children with slight tuberculous lesions with temperatures not higher than 38 C., were analyzed as to temperature and also as to sedimentatation speed of erythrocytes and the phenomenon of shifting to the left. Clear-cut distinctions between the results in the tuberculous and in the nontuberculous children were not found; but, in general, children with abnormal blood values presented slightly elevated temperatures. He attaches a slight diagnostic value to certain characteristics of temperature: considerable deviation from 37 C., irregularity, an undulatory character with wide daily excursions, the occurrence of peaks, and low temperature over a long period. But the occurrence of any of these types does not mean necessarily that the temperature is pathologic.

Accessory Placenta as Cause of Death of the Child During Birth.—A woman was brought to the hospital because of bleeding and irregularity of the fetal heart tones. Her appearance was not anemic, and the bleeding soon stopped. Fetal heart tones were not heard. The child was born dead. A double placenta was expelled. The main placenta measured 20 by 20 cm. and the accessory placenta, 10 by 10 cm. The distance between the two was 15 cm. The umbilical cord was inserted in the margin of the main placenta nearest to the accessory placenta. From this point three vessels ran toward the accessory placenta. One of these vessels was ruptured, from strain during the contractions, Klumper thinks. This rupture which caused the death of the fetus, was the source of the hemorrhage. The fact that it was fetal, not maternal blood that was lost accounts for the good appearance of the mother. The blood was mixed with amniotic fluid, which explains its amount.

Acta Medica Scandinavica, Stockholm

66: 295-498 (May 31) 1927

*Size and Shape of Erythrocytes. H. C. Gram.—p. 295. In English.
Carbohydrate Tolerance and Glycemia Curves. A. Oszacki.—p. 311. In English.
Erythema Nodosum in Adults. M. Arborelius.—p. 337.
Urobilin. E. B. Salén and B. Enocksson.—p. 366.
Glycemic Reactions in Disease. Ö. Holsti.—p. 443. In English.
Glycemia Curve After Administration of Potassium Iodide or Thyroid. Ö. Holsti.—p. 461. In English.
*The Thyroid and the Ovaries. E. Lundberg.—p. 467.
Potassium and Calcium Contents of Serum. A. Brems.—p. 473.
*Enterocolitis with Iodophil Micro-Organisms. I. Holmgren.—p. 484.
Iodophil Intestinal Bacteria. N. Svartz. Supplement XX.—pp. 1-149.
Basal Metabolism in Thyroid Diseases. E. Møller. Supplement XXI.—pp. 1-219. In English.
*Myelotoxic Serums. G. A. Lindström. Supplement XXII.—pp. 1-169. In English.

Size and Shape of Erythrocytes.—Gram improved the technic of measuring the diameter of erythrocytes. He calculated the average thickness of the cells and his conclusion, contrary to that of Warburg and Norgaard, is that macrocytes are as a rule thicker and microcytes (except in hemolytic jaundice) thinner than normal erythrocytes. The vitally stainable erythrocytes are perhaps thicker. He finds that the presence of more than 15 per cent of erythrocytes with a diameter of 8.6 microns or more is not a conclusive sign of pernicious anemia.

Thyroid and Ovaries.—Lundberg found that thyroxin may inhibit the effects of the ovarian hormone in mice.

Enterocolitis with Iodophil Micro-Organisms.—Holmgren attributes fermentative dyspepsia to an infection with iodophil bacilli. Subacidity or achylia was found in about 50 per cent of such patients and may perhaps facilitate the infection. Svartz, of the author's clinic, publishes a monograph dealing with the iodophil bacteria, especially with the clostridiums.

Myelotoxic Serums.—Lindström prepared leukocytolytic serums and reports on his attempts to use them in treatment of myelogenous leukemia.

Acta Pædiatrica, Stockholm

6: 265-484 (May 25) 1927

*Mineral Metabolism in Infections. N. Malmberg.—p. 265.
Gaucher's Disease. K. Otto and Klercker.—p. 302.
Congenital Pulmonary Cysts. C. de Lange.—p. 352.
Spasmophilic Diathesis. E. Böttiger and W. Wernstedt.—p. 373.
Scarlet Fever. E. Gorter et al.—p. 383.
Erythema Nodosum and Rheumatism. A. Landau.—p. 402.
The Sugar in the Cerebrospinal Fluid. E. Lagergren.—p. 414. In English.
Multiple Abscesses in Infants. A. Friedlaender.—p. 431.
*Dick Test in Children. N. Malmberg and G. Jacobsohn.—p. 442.
Antitoxin Scarlet Fever Serums. I. Jundell and N. Lönberg.—p. 463.
Poisoning by "Canned Heat" (Metaldehyde). H. Belfrage.—p. 481.
*Pathogenesis of Infantile Tetany. P. Drucker. Supplement.—pp. 1-198. In English.

Metabolism of Chlorine, Calcium and Magnesium in Infections.—Increased elimination of chlorides in the prefebrile period in children inoculated with smallpox vaccine was noted by Malmberg. There was retention of chlorine during the fever. The excretion of calcium and magnesium was increased after the vaccination.

Dick Test in Children.—Malmberg and Jacobsohn made Dick tests on 1,200 children. On retesting 320 children, they found that a positive reaction had hardly ever changed into a negative, while a negative reaction had changed in slightly less than 20 per cent of the children. They are in favor of repeating the negative tests.

Pathogenesis of Infantile Tetany.—Drucker found that the excretion of inorganic acids, phosphates and especially organic acids depends chiefly on the protein content of the food and is independent of the course of tetany. The "dysregulation" of ammonia observed by some authors in tetany occurs here only with a low protein intake. The tetanigenic action of the phosphates does not depend on their reaction nor on the changes of the blood reaction induced by them. He found a compensated acidosis (normal p_H and 10 per cent decrease in bicarbonates), not an alkalosis in the blood of children suffering from tetany. This acidosis is probably secondary and due to the spasms. While it is possible that the blood of normal children is saturated with calcium, this is not the case in tetany. The hypocalcemia—not a change in the reaction of blood—entails a low concentration of calcium ions. Therapeutic doses of ammonium chloride cause an uncompensated acidosis and thus increase the concentration of the calcium ions. Calcium chloride causes a compensated acidosis and increases the concentration of calcium ions in the blood in tetany by increasing the total amount of calcium. Its symptomatic effect seems to last longer than the action of ammonium chloride.

Hospitalstidende, Copenhagen

70: 407-434 (May 5) 1927

*Action of Digitalis. Erik Warburg.—p. 407.
*The Biologic Effect of the Ultraviolet Spectrum. Carl Sonne.—p. 424.

Action of Digitalis.—Warburg's opinion is, that digitalis does not produce any positive effect upon the frequency of the regular pulse, that under that condition it has great diuretic effect and does not have any other therapeutic effects. In sufficient doses, digitalis has a marvelous effect upon the fast, irregular pulse. Often the doses administered are too small.

The Biologic Effect of the Ultraviolet Spectrum.—Sonne urges that it is not yet proved that the curve of the therapeutic effect of light follows the same course as the curve of the erythema-producing power of light. The antirachitic influence lies in the ultraviolet part, but it is not known where the maximum is. The source of the action on surgical tuberculosis may as well lie in the visible portion of the spectrum as in the ultraviolet part, or it may lie in both.

70: 435-458 (May 12) 1927

*The Mode of Action of Light on Experimental Rickets in Rats. Eigil Rekling.—p. 435.
Osteitic Processes After Osteosynthesis. E. Dahl-Iversen.—p. 449. C'td.

70: 459-478 (May 19) 1927

Osteitic Processes After Osteosynthesis. E. Dahl-Iversen.—p. 459. C'cn.
Operative Technic in Depressed Fracture of the Skull. W. Vigholt.—p. 474.

The Mode of Action of Light in Experimental Rickets in Rats.—Rekling exposed to ultraviolet rays young rats that had been fed on a rickets-inducing diet. At the same time they were prevented from taking up their own excretions. These rats appeared to have rickets in spite of the irradiation, while the control animals, irradiated under ordinary conditions, were cured. The supposition is that the effect of light on experimental rickets mainly depends on the skin excretions taken up by the mouth, specially the fat containing cholesterol antirachitically activated by the ultraviolet radiation. Later experiments by Windaus, Rosenheim and Hess have proved that thoroughly purified cholesterol cannot be activated by the ultraviolet rays. The antirachitically activated substance is perhaps identical with another combination of the cholesterol group, such as the ergosterol, which after ultraviolet irradiation acts antirachitically in daily doses of only 0.001 mg.

Hygiea, Stockholm

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*Comparative Physiology of the Lacrimal Ducts. Bengt. Rosenheim.—p. 389.
The Airplane in the Service of Public Health and Nursing in War and in Peace. Fritz Bauer.—p. 399.

The Comparative Physiology of the Lacrimal Canals.—In experiments on different animals, Rosenheim found that there is a free passage through the lacrimal canals. A passage due to the action of gravity should thus be formed, and such a passage can be proved experimentally in calves and sheep. In connection with the act of winking, there appears a compression of the upper parts of the lacrimal canals. As these are not the same in different animals, the compression may affect only some parts of the canaliculus, the entire canaliculus or the canaliculus and sacculus. On account of the compression, a passage may or may not, under certain circumstances, be present. The compression must be regarded as an incomplete pump-mechanism. The most important application of this mechanism may be found in the removal of obstructions in the lacrimal canals.